

NATION'S BUSINESS



Chemistry Rubs Its Research Lamp—PAGE 11

January • 1941



NO MORE GOING 'ROUND THE MOUNTAIN

160 miles straight through seven rugged ranges of the Alleghenies on a practically level route runs the great new Pennsylvania Turnpike—the first express super-highway in America and the greatest single highway project ever attempted in the history of U. S. road building.

Motorists using this great four-lane highway save nearly 10,000 feet of vertical climb between Pittsburgh and Harrisburg. It pierces ranges with deep tunnels... slices whole mountains in two with great cuts... 160 miles of a motorist's seventh heaven without a sharp curve or a noticeable grade!

Before this road could be built more than 26 million cubic yards of rock and earth had to be moved. When you think of the magnitude of this task you can

understand what a tremendously important role explosives played in its construction. For example, in Clear Ridge Cut alone—the man-made canyon shown above—more than 700,000 pounds of dynamite produced by American Cyanamid Company were used. In a single blast a charge of 42,700 pounds—over two carloads—was used to loosen 60,000 cubic yards of material.

Normally considered a three- or four-year job, the Turnpike was virtually completed in 20 months. Vitally important in establishing this incredible speed record were Cyanamid blasting materials and the skillful supervision of Cyanamid explosive engineers.

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efficient explosives for use in mining, quarrying, road building and construction—this is just one of the many ways in which Cyanamid promotes progress and national welfare through chemicals and chemical products.



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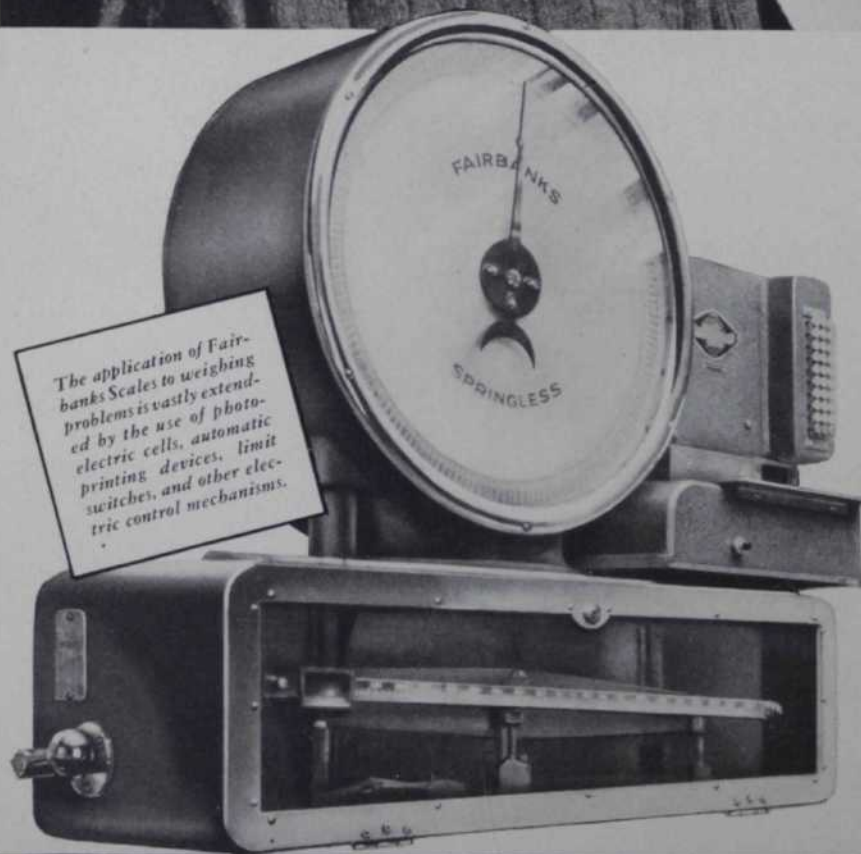
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The new Green Diamond Engine

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Shake Hands with Our Contributors

WITH THE PRESS devoting most of its front page space to war news, the radio featuring its coverage of foreign news and Washington publicity dealing largely with defense measures, it is no wonder that Americans are likely to neglect domestic problems. However, there are at least a few thoughtful persons who believe that an adequate defense can only be built upon a structure that has sound foundations.

In this issue, **James S. Kemper**, president of the United States Chamber of Commerce, gives his views on domestic issues such as public finance, taxation and restrictive laws that need adjusting to facilitate the building of an adequate defense machine.

Mr. Kemper is president of the Lumbermens Mutual Casualty Co. of Chicago and the American Motorists' Insurance Co. He was elected president of the Chamber last May, after serving as director and vice president since 1920. He is also a member of the American Committee of the International Chamber.

William A. McGarry is a free lance writer whose articles on widely known business personalities are familiar to NATION'S BUSINESS readers. His last article, "Do Not Allow Success to Go to Your Head" was printed in the April, 1940 issue.

Howard Stephenson is an author, editor and political campaign manager. In the last capacity he was chiefly active in Toledo, Ohio, where he campaigned for city-manager government and worked closely with Professor Jones of the University of Toledo, founder of that university's course in citizenship. Together they have made several surveys of American youth.

Arthur W. Crawford has served many years as a Washington correspondent specializing in political and financial news. Among the publications he represented were the *Chicago Tribune*, *Chicago Journal of Commerce*, *New York Herald-Tribune*, *Burroughs Clearing House*. He has covered all revenue laws since 1920, tariff revisions in 1922 and 1930 and attended the World Economic and Monetary Conference at London in 1933. He is author of the book, "Monetary Management under the New Deal" published in September, 1940, by the American Council on Public Affairs and received a Ph. D. in economics from American University, Washington, D. C., in June, 1940.

Edward S. Cowdrick has contributed many articles on labor relations to NATION'S BUSINESS. He is a consultant on personnel and labor problems.

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NATION'S BUSINESS • CHAMBER OF COMMERCE OF THE U. S.

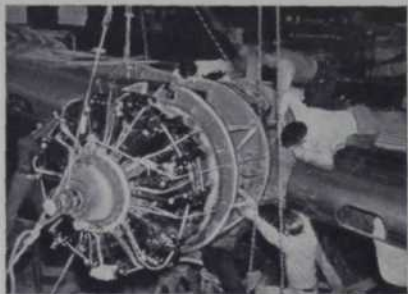
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Injuries to industrial workers have always increased in times of increased production.

"More production!" is the cry. Thousands of men find new work; men not fully trained must do important jobs. Everybody feels the urge to *rush*. Accidents, crippling men and production schedules, result.



America cannot afford these accidents. Men of high skill are scarce already. We must not let accidents thin the ranks of men as vital to our national defense as those in uniform.

Therefore, for the hundreds of thousands of industrial workers whose safety is guarded with help of American Mutual safety consultants . . . we have continued to forge new weapons to fight accidents and have sharpened our vigilance.

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Men familiar with the intricate operations of *each major* industry are among our safety corps. Working to *prevent* accidents, they also realize that preventive measures must not interfere with high-speed, close-tolerance work. Fortunately, they know production *methods* and production *men* as well as *safety*.

Recently, our consultants developed a *new method* of analyzing and interpreting accident records, making diagnosis and elimination of danger spots easier. This is but one of the new tools helping our policyholders guard their workers from danger.

WRITE FOR BOOKLET T, describing our accident-prevention work and specialized medical services intended to rehabilitate injured men for useful work. Address American Mutual Liability Insurance Co., Dept. Q1, 142 Berkeley Street, Boston, Massachusetts.



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American Mutual
Works to Make All Work Safe

"When
"Old Man Winter"
Blows—



THERE is nothing more uncertain than the weather . . . but come what may this winter, howling winds and drifting snow, sleet, hail or sub-zero temperature, there is one thing that is certain!

Though highways may be blocked and rivers choked with ice . . . though gales may sweep the mountains and pile tremendous drifts in the valleys . . . though other forms of transportation may be paralyzed . . . it is certain that the trains will get through!

Particularly during this season of the year, thousands of shippers and receivers of freight throughout the country smile with confidence when they think of the Norfolk and Western Railway . . . they know from past experience that freight routed over this railway will move!

If you want to lick the uncertainty of the weather, call or write a Norfolk and Western representative—he will be glad to help you with fast, economical—certain, "all-weather" routings!

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AND
WESTERN**
Railway

PRECISION TRANSPORTATION

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Through the EDITOR'S SPECS

Imported whiskers and 'isms

IT'S TIME the school textbooks were revised to inform the student about imports, intangible as well as tangible. From Europe we get whiskey and socialism, olives and communism, woollens and free love, wine and militarism, chemicals and state medicine, *et cetera*. In all these the balance of trade is heavily against the United States.

Latest import from Europe, although distribution is so far limited largely to New York, is a rich crop of whiskers. All kinds of beards are represented—scientific, military, political, plain and fancy. Even the local boys in Gotham are aping the lionized refugees in hirsute foliage. Columnist Lucius Beebe says that American faces and the English language have almost disappeared from the boulevards of Manhattan.

Success formula for young men from the hinterlands who want to make a big splash in New York—or Washington: Grow a foreign-trimmed beard, cultivate a dialect and don't let on you were born in the United States.

Blueprints to Destiny

PERHAPS you started off the New Year by making a compact with yourself to do certain things and to refrain from doing certain other things. If so, the chances are you took in too much time. A year is so long. It's much better to resolve "Just for today." Then, if it works, you can renew it for another day, and so on until a new habit has taken root.

In New York a woman's congress guided by the redoubtable Carrie Chapman Catt adopted a "Declaration of Purpose" designed to set the course of women's activities for the next 100 years. Our hat is off to the assurance shown by these women. Anyone who can set a course for as much as 100 days ahead in 1941 has no need for efficiency courses in "How to develop self confidence."

Spartan discipline

THOSE sour skeptics who wonder why the Government is drafting men

away from their work when we have millions unemployed and more than 300,000 in the C.C.C. will be relieved to learn that the C.C.C. has become defense minded. Security Administrator McNutt announces proudly that all enrollees are now required to take the Red Cross First Aid course and the younger men calisthenics.

Distribution or dissipation?

DR. H. T. DAVIS, a professor of mathematics at Northwestern University, has devised an index of the concentration of wealth in the United States. He puts the ideal point at 50, with 100 registering oligarchy, or complete concentration of wealth in a few hands, and zero, meaning communism or equal distribution. Revolution by the masses would be anticipated at about 70, and civil war, or revolt of the upper classes, at approximately 30. The index now stands at 40, a drop of 20 points since 1929.

The substance of Dr. Davis' diagnosis is that this country is now tending toward the danger point in dissipation of its wealth. We have been consuming our seed corn.

Economic higher law

CONTRARY to popular prejudice, the distribution of income and wealth is not a matter of chance. The great Italian economist, Vilfredo Pareto, demonstrated this in what has come to be known as Pareto's Law.

Pareto showed that the very high incomes shade off gradually to the lowest in inverse proportion to the number receiving them. As everyone knows, the largest incomes are received by a comparatively few persons, and the smallest incomes by a very large number of recipients. But when the distribution is plotted the resulting "Pareto slope" is a fairly smooth line of gradation, and this is the case generally.

In the *Quarterly Journal of Economics*, Rufus S. Tucker measured this slope of income distribution in the United States for the years from 1914-1936 and also for the post-Civil

Zero hour...



Ernie Ocklup has more carriage trade than any store in town—but sometimes he envies the Cash & Carry. The end of the month is Ernie's Zero Hour. Mailing 350 Please Remits keeps him and the Mrs. up half the night... Too bad Ernie doesn't have a Postage Meter!

If you mail a few hundred letters only *once* a month, you need one, too! The convenience of the Postage Meter can be worth far more than the cost!

A Pitney-Bowes Postage Meter does away with ordinary stamps and hand mailing. It *prints* a stamp, postmark, and a 2" x 1" advertising slogan on the envelope, and simultaneously seals the flap. Postage for parcel post is printed on tape. The Meter does its own accounting. Metered postage is worthless except on your business mail, can't be sold or traded. And Metered Mail, already postmarked and cancelled, moves faster in the postoffice, can make earlier trains.

The Postage Meter usually saves time, worry, and postage. A call to our nearest office will bring a demonstration on your own mail... Why wait?



The Postage Meter Co. 1320 Pacific St., Stamford, Conn.

IN CANADA: The Canadian Postage Meters & Machines Co.

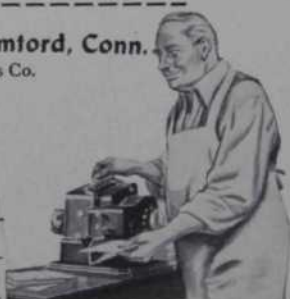
PITNEY-BOWES

- ☐ Send me your illustrated brochure
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Name _____

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War period. Highest income concentration was in 1916, closely followed by 1915, 1928 and 1929. Except for those years we had a constantly higher concentration just after the Civil War than at any time in the past quarter of a century. The great depression acted strongly to decrease concentration. The rich have grown poorer, actually and relatively.

The continuance of this tendency through artificial means and the persistence of dull business and unemployment are not a coincidence. Economist Carl Snyder has shown in his "Capitalism the Creator" that unequal distribution of income is a great boon to a free economy, instead of being the apparition that share-the-wealthers visualize. From the higher incomes flow most of the investment capital, or "risk money" necessary to keep industry progressively expanding and maintain and improve our standard of living.

Inequality is universal and inevitable. The alternative to our economic inequality in America is the *political and economic inequality* of Russia.

There's room for more

THE NEXT time you hear someone say that "Business men in public office are generally flops," why not tarry long enough to nail this fallacy?

Remind your misinformed adversary that, of the four men who took the lead in founding our government—Washington, Franklin, Hamilton and Jefferson—Washington and Franklin were business men.

Coming down to the present, we find among the business men who are Governors of states, Aiken of Vermont, Barrows of Maine, Heil of Wisconsin, Lehman of New York, O'Daniel of Texas and Stark of Missouri. Former business men in the Senate include Bridges, Byrd, Capper, Donahey, Glass, Herring, Holman, Johnson of Colorado, Nye, O'Mahoney, Thomas of Idaho, Townsend and Vandenberg. Is there any question that this array is at least an average sample of senatorial talent? You may agree with us that it assays well above the average.

No dissenters permitted

IN THE Middle Ages some heretics were burned and others excommunicated. At that time one sentence was almost as bad as the other. A person excommunicated was cut off from all intercourse with his fellows. The philosopher, Spinoza, thus expelled from the Jewish synagogue and the communion of his people, had to seek asylum with a Christian family to survive.

The Communist Party has revived

this medieval form of punishment for apostates from its faith. A professor at Brooklyn College who joined the C.P. and later recanted told the New York legislative committee investigating radicalism in education that he received an official expulsion notice from his local college branch of the order.

It informed him:

The ideas you express are Trotskyite ideas. We declare that we consider any personal or social connections with such an individual as incompatible with the honor and self-respect of a conscientious and politically minded revolutionist.

In this reputedly enlightened age excommunication should lose its terrors. Now it is more aptly liberation of the enthralled victim.

"Appalling" is not too strong

WRITING in *Banker's Magazine*, W. Randolph Burgess of the National City Bank, New York, warns of the growth of a doctrine strange to this country. He says:

In war or a huge defense program like ours there are two directions in which we might travel. One is to copy the authoritarian methods, to become ourselves a Socialist state in the sense that the Government would be given absolute control over the life of the people. It is appalling to discover how many people are willing to adopt that sort of solution for the present problems of the United States.

Those who think Mr. Burgess overstates the matter may profit by reflecting on these words by Mrs. Franklin D. Roosevelt:

Do not be afraid to give up the rights of a free people, if giving them up means we are to preserve our way of life, because as a free people we can always get them back again whenever we want them.

And this report by the New York *Herald Tribune* of what Chester C. Davis of the National Defense Commission told a farmers' convention.

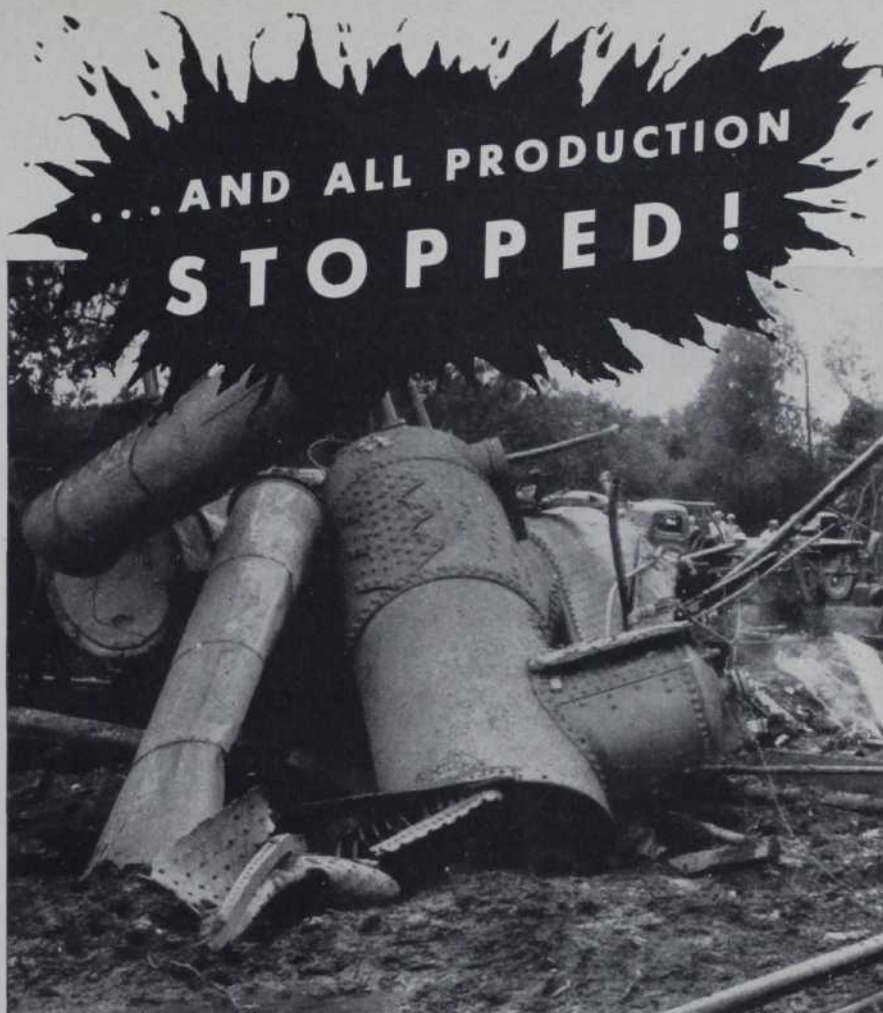
While America has the power to make itself impregnable, this can not be done while "preserving untouched all the privileges and prejudices that are embedded in American democracy."

Do they mean that, to save ourselves from Hitler, we must adopt Hitlerism?

No calls, no soap

WE ARE told about a salesman who sells envelopes. From the time he first started on his job Harry Adams has kept a record of everything he did. His cumulative figures show that he has rung up sales of \$6.21 for every call he has made. His own commission earnings are \$1.02 per call. His all-time average, says H. A. Hopf, management engineer, is 32 orders for every 100 calls made.

Not all of us can rate our average in such exact terms as this. If we



When a steam boiler, a whirling fly-wheel or a speeding turbine "lets go," it is usually with terrifying suddenness—and very often with serious property loss and human tragedy.

Yet, it doesn't take a destructive accident to be financially disastrous. . . . A ruptured boiler tube—a broken crankshaft—a shorted generator armature—can put a power-plant out of action for days. And when power fails, *everything* stops! Production and sales losses pile up. Contract penalties may be incurred. Prestige may suffer.

It is the specialized business of Hartford Steam Boiler to serve its policyholders through the *prevention* of losses due to power-plant failure . . . as well as to reimburse them through insurance should accident still befall.

Each piece of Hartford-insured equipment is inspected periodically by what is considered by far the largest, most

highly experienced and most expertly supervised inspection organization of its kind. For this service the policyholder pays nothing beyond the Company's normal insurance premium. Ask your agent or broker about the advantages of a Hartford Steam Boiler policy.

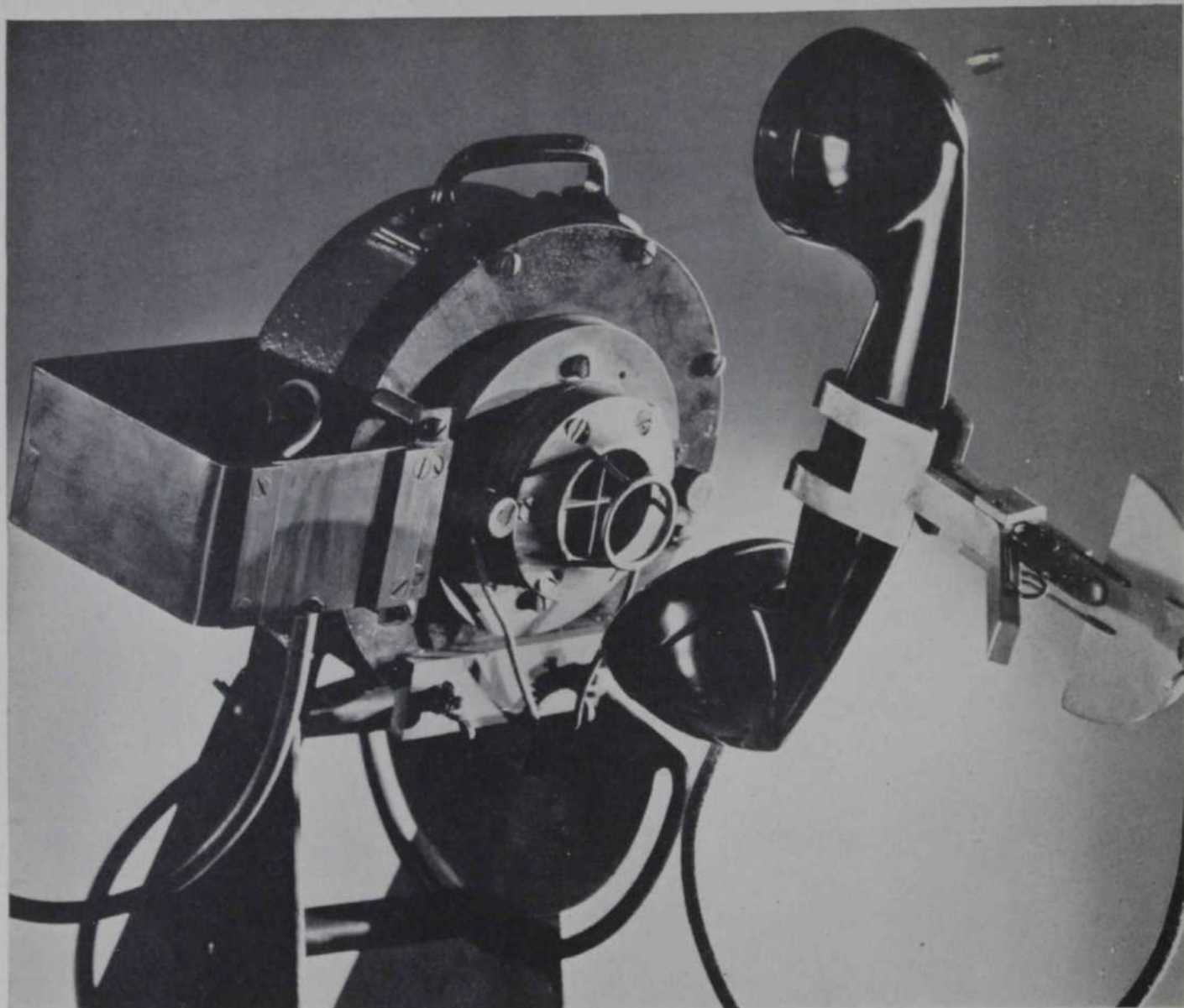
HARTFORD LEADS "BY MANY LENGTHS"

Based on five years of official State insurance department records, the graph at left indicates, by comparison with the five next largest underwriters, the preponderance of America's insured power equipment covered by this Company. (Hartford is also chosen to shop-inspect more than ninety per cent of the Nation's industrial-power boilers during their construction.)



**THE HARTFORD STEAM BOILER INSPECTION
AND INSURANCE COMPANY** HARTFORD,
CONNECTICUT





SAID THE ELECTRICAL MOUTH TO THE ELECTRICAL EAR...

*"Joe took father's shoe bench out.
She was waiting at my lawn."*

If you were passing through the Bell Telephone Laboratories today you might hear an electrical mouth speaking this odd talk, or whistling a series of musical notes, to a telephone transmitter.

This mouth can be made to repeat these sounds without variation. Every new telephone transmitter is tested by this mouth before it receives a laboratory or manufacturing O.K. for your use.

This is only one of the many tests to which telephone equipment is subjected in the Bell Telephone Laboratories. And there is a reason for the selection of those particular words.

It happens that the sentence, "Joe took father's shoe bench out," and its more lyrical companion, "She was waiting at my lawn," contain all the fundamental sounds of the English language that contribute to the intensity of sound in speech.

Busily at work in the interest of every one who uses the telephone is one of the largest laboratories in the world. The development of the telephone in this country is proof of the value of this research. In times like these, the work of the Bell Telephone Laboratories is especially important.

BELL TELEPHONE SYSTEM

*The Bell System is doing its
part in the country's program
of National Defense*



could, how would our records stack up? When a salesman has a bad day the record stares him in the face and no alibi is eloquent enough to explain it away to himself, particularly if he is paid on a commission basis. If all others in business had some daily measure of efficiency for their work comparable to the salesman's order book their achievement no doubt would be stepped up measurably.

Premises under the microscope

"PLANNING for a Permanent Agriculture" is the title of a booklet by one of the anonymous and omnipotent planners in the Department of Agriculture. In its opening paragraph, the writer marshals several factors that he says relegate traditional policies to the ashcan. Among them are "the loss of much of our foreign market," "the rise of nationalism throughout the world," and "the closing of the frontiers."

That's three strikes and out. The loss of our foreign market for agricultural products is owing largely to the mistaken new policy of this country in trying to rig prices in a world market.

"The rise of nationalism throughout the world" is nothing more than a phrase. The rise of nationalism started at least 400 years ago.

On "the closing of the frontiers" important light is shed by a current study of Rufus S. Tucker published in the *Southern Economic Journal*. Dr. Tucker examined the theory that our physical frontier has been an economic safety valve for surplus industrial labor. He says the new land in the West was settled largely by farmers from the older states and immigrants from Europe. More farmers have gone to the city than industrial laborers to the farms. There is no credible evidence that migration from city to farm has been on the whole any greater in times of depression than in normal times. In short, this economist finds that the frontier theory is just another myth of social reformers.

Chemistry's Research Lamp

THIS month's cover photograph illustrates nylon hanks in strands that are many times the diameter of the fine yarn used for women's sheer hosiery. It is used for surgical sutures, fishing leaders, bristles for toothbrushes, hairbrushes, industrial brushes, and has inviting possibilities as a basic material in the manufacture of numerous products for which it is now undergoing experimental tests.

But nylon is only one of hundreds of new or budding products with which chemistry is opening up new

frontiers for American enterprise. In this issue of *Nation's Business* a 24 page section, beginning on page 33, is devoted to this industry and a record of its accomplishments under a capitalistic, competitive system that has never failed to provide new opportunities for men of vision who have the fortitude and the money to risk failure. The industrial frontiersmen of today, the public benefactors of tomorrow, are to be found in the laboratories provided for them by private industry.

More dollars laid off

"COME and get your money," says the First National Bank of Englewood, Chicago, in a letter to patrons of its Savings Department.

President J. M. Nichols explains that, with the retirement early in 1941 of the last of its Old Deal 3½ per cent U. S. Bonds, the bank faces an insoluble problem in the reinvestment of \$2,800,000 in funds. As the only safe and practicable course it will discontinue paying any interest at all on savings accounts. In fact, it will even be necessary to charge Federal Deposit Insurance of one-twelfth of one per cent on any deposits not withdrawn.

The Government's monetary policies have carried us a long way down a dead-end street since the time not so many years ago when bank officers and employees went out and solicited deposit accounts. The security represented by the copy book maxims on thrift has been supplanted by a new security that starts with borrowing and ends with spending.

Good at "figgers"

THE WALL charts in union headquarters are showing a sharp upturn. A rich harvest of dues is rolling in to the satisfaction of czars, organizers and walking delegates.

In New York, Local No. 3, International Brotherhood of Electrical Workers, voted an extra assessment of \$12 a month on Class A members. That makes their total tribute \$18 a month, or \$216 a year—more than dues in some of the swankiest clubs in New York or Washington.

Temporary workers hired at the Fort Meade army camp in Maryland are required to pay the carpenters' union \$57.50 for membership and "permission to work at carpenter work or any of its branches."

James Petrillo, who draws \$20,000 a year as head of the American Federation of Musicians and \$26,000 from the Chicago Federation, attributed his success to the fact that "I was always good at arithmetic." Apparently that is not a unique qualification among labor leaders.



A Diamond Ring and a Cake of Soap...

If you were selling diamond rings, your packaging problem would be comparatively simple—produce the handsomest possible package with little regard for cost.

But in merchandising products of large volume and low selling price, such as toilet soap, chewing gum, razor blades, the utmost ingenuity is required to find the right package—the one that will serve the product best, have the greatest sales appeal, and still be within the proper limits of cost.

Our wide experience, gained through 27 years of service to leading manufacturers, can be of value to you in finding the right package for your product... And from our line of over 70 different wrapping machines, we can supply one to suit your requirements perfectly.

Consult our Packaging Clinic for free assistance on your packaging problems



Showing but a few of the products wrapped by our machines. These machines wrap approximately 80% of all the machine-wrapped goods produced in the United States.

PACKAGE MACHINERY COMPANY

Springfield, Massachusetts

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IT SAYS *"Whoa"* TO 2000 HORSES!



WE think it means something that so many great multi-engined airliners are equipped with Hydraulic Brake Hose designed by the G.T.M.—Goodyear Technical Man. This flexible rubber tubing transmits to wheels the tremendous braking pressure that brings today's fast ships to such quick and gentle stops—and no hose takes more abuse. It is whipped by propeller blasts, bombarded by flying gravel and subject to extreme vibration and flexing. A single pin-point leak would cause a loss in braking power that might easily lead to a serious accident. But Goodyear builds this hose to withstand *five* times greater pressure than the maximum required in braking—a 5 to 1 safety ratio that insures many thousands of safe, sure-stop landings.

Greater safety explains why Goodyear brake hose is used in many leading motorcars, too. You will find this same high quality and built-for-the-job dependability in all rubber products specified by the G.T.M. To consult him on your problem, write Goodyear, Akron, Ohio, or Los Angeles, California—or phone the nearest Goodyear Mechanical Rubber Goods Distributor.

THE GREATEST NAME IN RUBBER
GOODYEAR



Happy New Year—Collect!

WHAT 1941 will be is a question which must look for answer beyond the seasonal "Happy New Year." From an economy of peace our nation is rapidly moving toward an economy of war. Our Government and our productive resources are engaged in the fulfilment of armament schedules, the magnitude of which implies a future which will be as surely regimented as the young lives requisitioned for military service.

As the enormity of the nation's defense effort is revealed in its estimates of time requirements, in its charges against the people's incomes, in the stimulated construction of new plants and expansion of existing facilities, in the lush growth of administrative personnel and regulatory documentation, in the reorientation of community interests and revision of institutional objectives, the most casual observer must be impelled to conclude that any idea of "business as usual" amounts to delusion.

To every business man it is becoming increasingly clear that the diversion of business from its traditional services signifies severe dislocations. When, and on what scale, no one can even guess.

It may well be that the situation with which management is now confronted in itself constitutes the guidance by which domestic perils can be averted.

Currently, trade and industry are operating at abnormal levels. All the makings of a specialized boom are in evidence. Factories booked with defense orders are producing at volume peaks. Output is running behind orders. Backlogs run months to a year or more ahead. The rising tide of contract awards increases pressure on management to show greater efficiency, to ease burdens by subcontracting.

It might seem that the only riddles are how to get more machines, more trained hands, new buildings. Not so; management must give thought to fiscal and economic policies shaping in Washington under a war psychology.

Priorities and deliveries become immediate problems by reason of the possibilities of cost and price advances. Buyers translate temporary improvement of their own businesses as a general tonic, rush into the markets and expand their inventories by long forward commitments. In this exhilarating activity is the seed of confusion. Sellers' markets be-

come the rule. Business men, the country over, are much concerned to know whether the overbuying of materials to satisfy the real measure of demand will end in a severe slump, with an acute inflationary stage as its disturbing prelude.

Other uncertainties: Will taxes be drastically raised, and, if so, where will the new burdens fall? How deeply can non-defense items be pared? Will additional public borrowings come from the thrift of individuals and institutions, or from further swellings of bank credit? By the manner and the degree in which Washington answers these questions will the purchasing power of the people be determined for years to come.

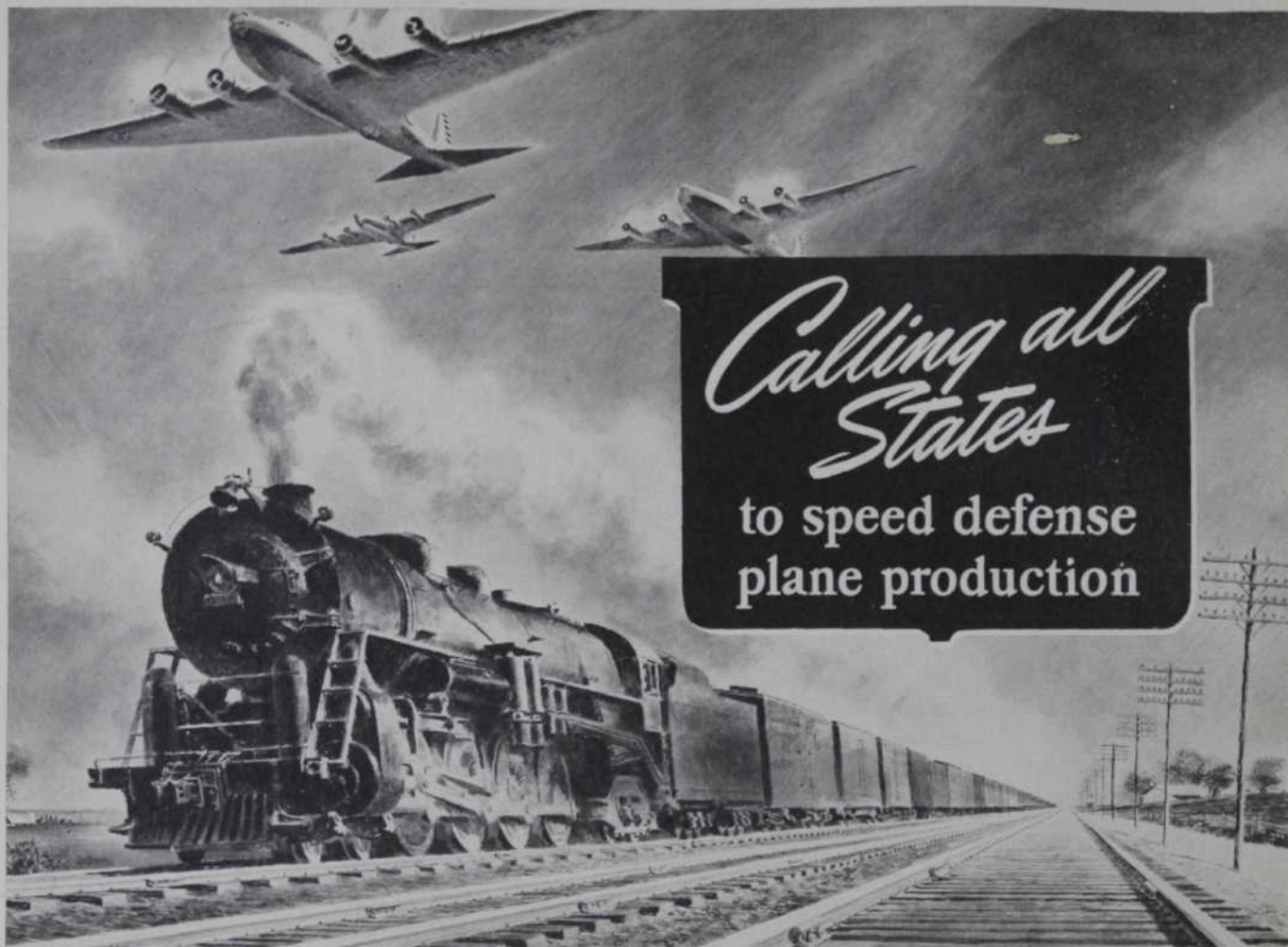
Inextricably bound up with the problem of producing for the country's usual wants as well as for armament is the position of labor in respect to wages. Persistent extension of gains will push up the cost of living, touching all others, who consequently would seek higher compensation for themselves. Whatever new gains were made would then be passed on to buyers of goods and services who in turn would attempt to lift their own incomes proportionately. Once the spiral begins, it takes more and more to buy less and less. Inflation follows.

The nation's financial health is of first importance in assuring the perpetuity of our way of life. National solvency is the condition ruling the American people's ability to help themselves, and thus to help others. Its achievement is a grubby business, offers no thrills, is bare of sensational headlines, shakes the world with no thunders of combat or oratory.

Yet, somewhere on the road we are now traveling, we must come to grips with the issue of bankruptcy. The artifice and sophistry of political hocus-pocus will not save us. A country unable to pay its own bills is in poor position to grant loans or credits to a friend in need.

The hard, emerging fact is that our fiscal resources are not limitless in any realistic sense. Only irresponsible wishfulness can support the thought of an unearned prosperity. "Happy New Year" collect, is a greeting with a face value as dubious as the warmth of its sentiment.

Merce Thorne



WHAT does it take to build the airplanes needed to defend America?

First of all, it takes factories—new buildings.

Next, it takes machines.

And finally, it takes materials from every state in the union—everything from abrasives, acids, aluminum and antimony to tin, tungsten, turpentine, vanadium, wool and zinc.

How are all these machines and materials gathered from the far corners of the country to the factories where planes are built?

The answer is the same that you get for any other industry—the American railroads do the job.

According to one well-informed writer, "55 per cent of the average requirements for air-

craft fabrication is shipped in excess of 1,500 miles for assembly."

At latest count, there were 79 aircraft manufacturers, scattered over 20 states—and beyond this, there were 23 aircraft engine manufacturers—scattered over 12 states.

Now, despite the size of America's aircraft program, it is not a big job to move the materials needed, measured in *tonnage*. There are industries which move a greater tonnage

of freight in a week than aircraft construction requires in a year.

But in aircraft construction another factor is of particular importance, and that is reliability—accurate scheduling—on-time delivery.

And on this point also, the American railroads are today at the highest point of efficiency in history.

What they do for the airplane industry, they do for the farmer, the merchant, and all the industries of America—they haul the food you eat, the clothes you wear, the fuel that warms you, the things you use every day, handling America's traffic so smoothly that few people give it a second thought.

That's the best evidence that the railroads are America's No. 1 transportation system in their competence as well as in their size.

NOW—TRAVEL ON CREDIT

America's railroads offer new, simple installment payment plan for trips and tours.

You can take your car along too.

SEE YOUR LOCAL TICKET AGENT



ASSOCIATION OF AMERICAN RAILROADS
WASHINGTON, D. C.

Clarity Should Begin at Home

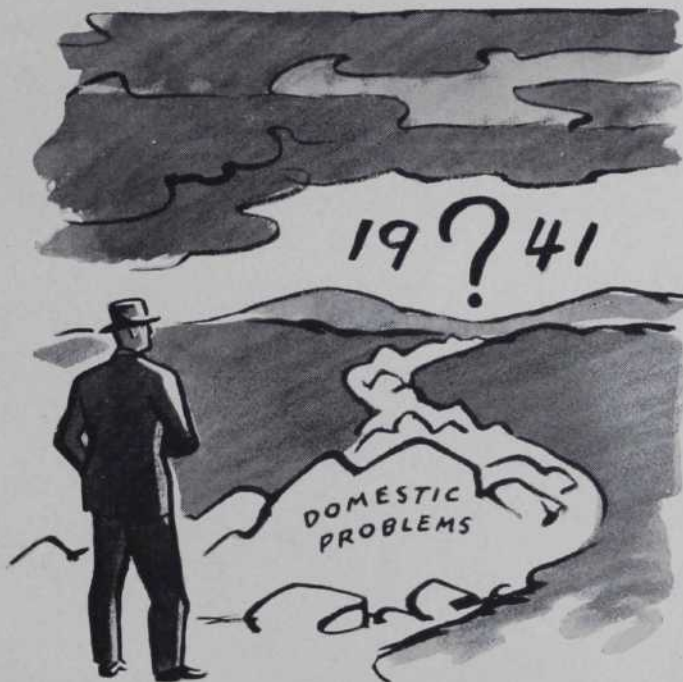
By JAMES S. KEMPER

THE MOST important New Year's resolution the American people could make would be a whole-hearted commitment of their best thought to solution of their domestic problems. It is clear enough that the way forward is beset with difficulties which will test the national spirit to the full. This applies to what must be done, first, to make America impregnable against foreign aggression, second, to support the President in his expressed determination that no American boy will be sent to fight on foreign soil, and, third, to put our national economy to the searching test of national interest in all that the words imply.

A first essential to any realistic hope of success in improving the current state of the nation is recognition of the fact that political decisions do not cure economic ills, though they do sometimes induce them.

The 50,000,000 votes which were cast on November 5 were imposing. But they will not raise a bushel of wheat, build a tank, construct an airplane, or pay a dollar on the national debt. All the perfervid oratory expended in the campaign will not provide a single job or turn a single wheel. The difficulties we faced on the eve of election still are before us. As a people, we have voted what we think about things. But we have yet to determine what we are going to do about them. What we need now are not political predictions and promises, but economic results.

For the moment, at least, the curtain has been rung down on the politician. It is now rising on the producer. And by the "producer," I do not mean alone the executive heads of corporations or the managers of large industrial enterprises. I mean the hundreds of thousands of men who are engaged in productive activities, who are supplying or making or distributing the material



A CALM and realistic approach to the problems of the day which business men can use as a guide in their efforts to build prosperity, provide jobs and maintain the freedom of opportunity that made this country great

things that go to make up our American pattern of living. I mean, too, the agricultural producer—the farmer; and I mean every man and woman who labors in factory or in field for the production of those goods and services which constitute the real material wealth of this country.

Let us not delude ourselves. There are only three ways out of the sorry plight in which we find ourselves with respect to our federal fiscal affairs. We can increase our income. We can decrease our public expenditures. Or, we can reduce our American standards of living. That—lowering our standards of living—is the last thing we desire. But

make no mistake, it easily may result if we continue on our present course.

Beyond that lies an even greater threat. It is my opinion after years of thought and study that, so far as the loss of our liberties is concerned, we have much more to fear from bankruptcy of the federal treasury than from any foreign power or combination of powers. That conclusion is based on first-hand observation in Europe. Since 1923 I have made several trips to study and, if possible, to determine for myself just what was responsible for the changes in government that were in progress abroad, and the implications of those changes from the viewpoint of America. In brief, my conclusions are:

One of the worst by-products of the great war was a large number of depleted national treasuries; national economic survival necessitated highly centralized control, particularly of exports and imports; dictatorship provided that control; when dictatorship came in, representative government went out.

And so I say to you, as Washington said to all America in his farewell address:

As a very important source of strength and security, cherish public credit. One method of preserving it is to use it as sparingly as possible; avoiding occasions of expense by cultivating peace, but remembering also that timely disbursements to prepare for danger frequently prevent much greater disbursements to repel it, avoiding likewise the accumulation of debt, not only by shunning occasions of expense, but by vigorous exertion in time of peace to discharge the debts which unavoidable wars may have occasioned, not ungenerously throwing upon posterity the burden which we ourselves ought to bear.

A look at our record through the years is indeed revealing:

In the two wars we had with England we accumulated a substantial debt, all of which was paid off by 1836. Two-thirds of the debt for the War between



PRELUDE TO DICTATORSHIP

the States was paid off within one generation. The costs of the Mexican and Spanish-American Wars were not large and were easily absorbed.

We entered the World War with only \$1,000,000,000 of debt, which was small compared to our wealth. Our taxes were low (individual normal tax, two per cent—surtaxes, one to 13 per cent—corporation taxes, two per cent). We had no death taxes, and many of the taxes we now know about were not even in view. So it was that, when we got into the war and jumped up our spending tremendously, we were able to expand tax rates and tax bases. After the establishment of the budget system in 1920, we proceeded to save money and gradually reduced the debt, which had been the traditional way.

Now, after two decades of peace, we face a debt figure one would expect after a great war. This circumstance presents a very real problem in fulfilling the national defense program. In this connection, it is worth while to review our current fiscal situation.

To begin with, the revenue of the Government for the year ending June 30 next, probably will exceed \$7,000,000,000. But even this sizable amount is no more than enough to provide for our non-defense expenditures. Expenditures for defense, including \$1,000,000,000 for defense maintenance, will total \$5,000,000,000, all of which must be raised by borrowing.

I doubt whether more than \$7,000,000,000 a year could be raised by taxation unless the national income substantially increases. If it should rise to \$90,000,000,000, it is conceivable that we might be able to collect as much as \$10,000,000,000 in taxes, but that still would leave us with a substantial deficit.

Our present direct debt is \$44,000,000,000. It probably will be \$48,000,000,000 by the end of the fiscal year. Unless a re-appraisal and readjustment of our expenditures can be made immediately, it is not unlikely that our direct debt, by June 30, 1944, will be more than \$60,000,000,000, with an unpredictable amount of contingent debt. The Treasury Department already is prepared to ask for an increase in the debt limit to \$65,000,000,000.

What would happen finally, in the event of our participation in the European war, must be left to the imagination. Some economists believe that it would go beyond \$125,000,000,000, which is more than the assessed value of all the real property in the United States. Such a figure would place a crushing mortgage on every individual, every building, every business.

The ominous trend of tax rates is revealed by comparing the rates now prevailing with the rates in effect before the World War. It is a significant fact that *per capita* taxes—federal, state and local—are 70 per cent more than they were during the war period. Taxes—national, state and local—now are absorbing one-fourth of our national income. Apparently, we have worked ourselves into the unfortunate position of pushing our taxes to the maximum in peace time, leaving little resiliency to meet the shock of an emergency.

The budget is swollen

HUGE armament expenditures are being added to peacetime budgets already swollen to unprecedented proportions. If expenditures are not to get entirely out of hand, serious attention must be given to the whole cost of government. In the federal budget, non-defense items now amount to about \$7,000,000,-

If business men stand together they can preserve the country in the form in which the founders gave it to us



000 annually and, of the \$9,500,000,000 spent by state and local governments, little is used for military objectives. This means a total of approximately \$16,500,000,000 spent for non-defense purposes. How much, perhaps desirable at a time when the public can afford it, can be eliminated in time of stress?

The citizens should demand that the acid test of need be applied. It is not sufficient that an expenditure may be desirable—the test should be, is it necessary? Proper attention to this situation substantially would reduce the cost of state and local governments without interfering with their effi-

ciency, and would enable those responsible to contribute most helpfully to the defense program.

With respect to the federal situation, it is essential in view of the tremendous debt burden already accumulated that five things should be done and done promptly:

1. The budget system which was in effect from 1920 to 1933 immediately should be re-established with full authority to the Budget Director, and with the reinstatement of the plan of coordination that previously was in effect.
2. A survey should be made to determine to what extent expenditures for non-defense purposes can be reduced.
3. A special congressional committee should be appointed to conduct a thorough and impartial survey of the objectives of our country's foreign policy insofar as they may at present or in the future be determining factors of our defense program; and, further, to examine the character and objectives of our present rearmament program to determine whether it is the *right* one.
4. In formulating and carrying out an American program of defense, all possible stress should be given to the necessity of *economy*. Committees of Congress, War and Navy officials, and the Defense Commissioners should fix, unmistakably, the responsibility for the detection and elimination of excessive expenditures, for realistic coordination of purchases with actual needs, and for prompt adaptation of the entire defense program to current world conditions.
5. As a control over the whole situation, a congressional budget committee for considering, in association with the Budget Director, the total appropriation which the Congress should make in any one year should be set up immediately, this committee to be charged with the sole responsibility of recommending to Congress the total amount of the budget, leaving the present committees the job of allocating the funds within the total authorized.

Coordination is needed

WITH respect to the fifth suggestion, it is pertinent to say that the National Chamber has pointed out repeatedly that congressional control of expenditures under the present rules and procedure is weak and defective. Appropriations are voted piece-meal as may suit the convenience of Congress.

At no time does Congress consider the budget as a whole, neither is there any coordination between the appropriating and revenue-raising committees.

This situation obviously needs improvement, and the National Chamber believes the answer is the creation of a congressional budget committee. This committee, composed of key members of Congress, would consider and recommend to Congress the maximum of expenditures for the fiscal year under consideration. Its report would center the attention both of Congress and the public on this maximum total and un-

(Continued on page 86)



LIONEL GREENE
 "If liberty is surrendered,
 democracy is no good"

WHAT will be the temper of the next Congress?

No one knows precisely. No one can know. The seventy-seventh Congress will have new problems to meet and new phases of old problems will turn up. After a sampling of opinion, *à la* Gallup, the answer might be guessed at in two words:

Cautious. Costly.

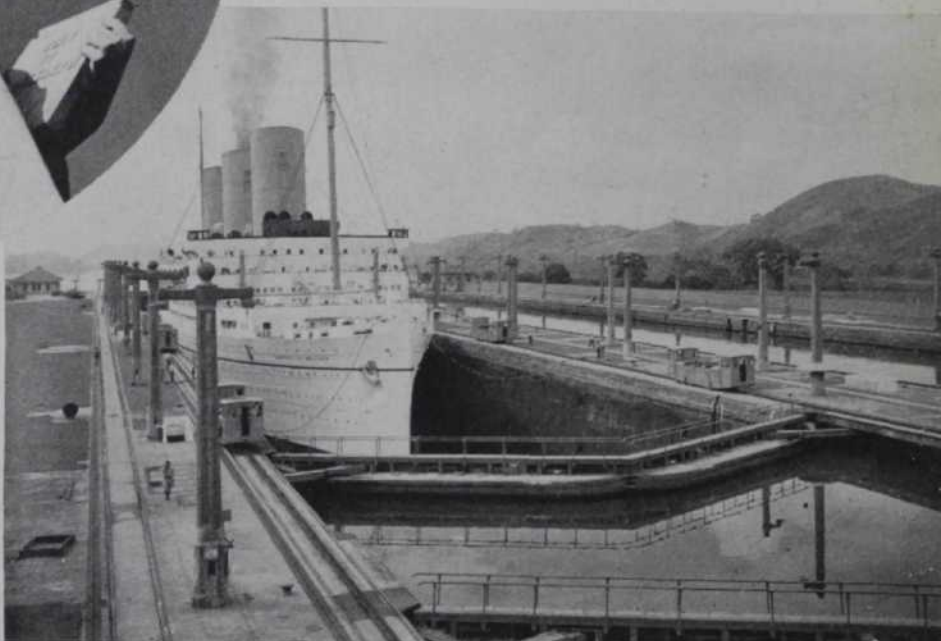
Billions for defense but not a dime for test tubes was the prediction of one light-hearted member of the lower house. A check on the kind of reforms that have resembled a coon hunt through a wild wood on a dark night by amateurs. Heavy emphasis on recovery, higher taxation, common sense in law-making and a revision of some of the least tolerable of the "emergency" legislation. Some of the problems that will certainly come before the seventy-seventh will be noted later. Meantime, statements will be taken from two of the most conservative, respected, and occasionally discouraged members of the Senate.

Sen. Harry F. Byrd, Virginia, is a Democrat. He is definitely not a New Dealer. For eight years he has fought against extravagance in the Government's expenditures. Sen. Robert H. Taft of Ohio is a Republican who might have been his party's presidential nominee in 1940 if he had been willing to do a little trading. He has opposed governmental waste and the Tommy-Harry-Rex bugle corps.

Neither is a political manipulator. Either may be taken as representative of that considerable group in Congress on both sides of the party fence the members

New Congress

By HERBERT COREY



WIDE WORLD
 Congress will give money to any project involving safety of Panama Canal. Photo shows late "Empress of Britain" in locks

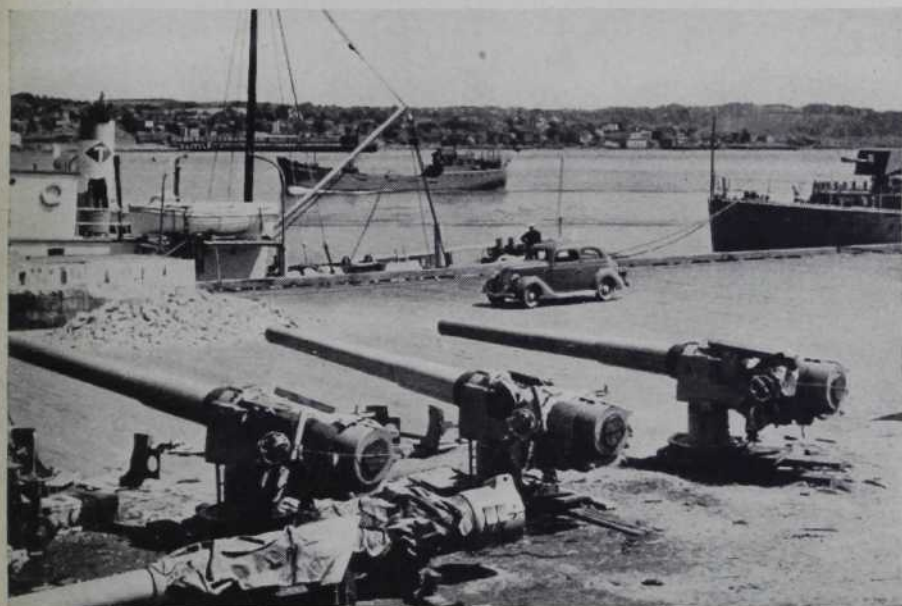


ACME
 This illicit still would have yielded about \$5,000 daily in taxes if licensed. Whiskey tax raise seems doubtful in view of bootleggers

Prepares to Watch and Weigh

ROLE of the new national legislature in dealing with defense problems is highly speculative. Pressure is on emergency measures rather than

on domestic issues. Temper of the members will be a major factor for business men's consideration in shaping their immediate plans



Newfoundland base gets new guns to bolster its defense—trades for more new bases would likely depend on congressional O.K.



The new army will include a large proportion of mechanics—they must be paid well or they will not remain as professional soldiers

of which are concerned with national and not factional welfare.

"Just now the attention of Congress is centered on national defense," said Senator Byrd. "Apart from that your guess is as good as mine."

"The seventy-seventh will not be a subservient Congress," said Senator Taft. "The seventy-sixth Congress was not a rubber stamp. It did many things the Administration did not like and refused to do many things the Administration wished. I do not see that the few changes



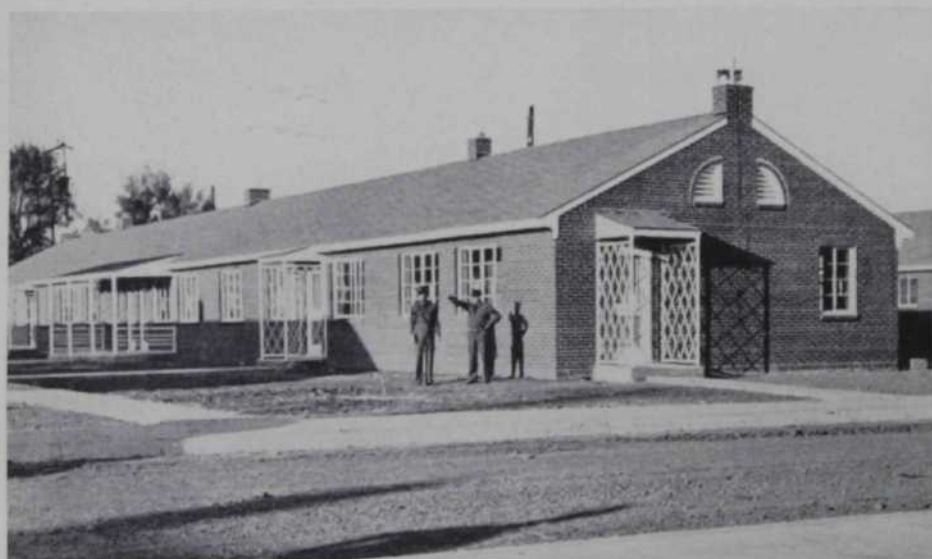
British sailors take over old U. S. destroyers in eastern Canadian port

in membership have altered the situation."

Not one of the professional politicians in either House or Senate was approached. They cut their stencils long ago. The others who talked gave evidence of sincerity and concern. Not one accepted the scanty margin by which Mr. Roosevelt was returned to office—scanty except in the electoral college—as anything remotely resembling a mandate. They anticipate an actual unanimity in every vote on



The government's pocket book at Ft. Knox where gold is stored. Sen. Byrd hopes Congress will regain control of the purse strings



The first defense housing units were these homes for enlisted men at Maxwell Field near Montgomery, Ala., built with U.S.H.A. funds



Tens of thousands of employees have been added to the government payrolls to swell crowds like this emerging from a Washington bureau

measures affecting the national defense: "We'll give the Army and Navy all the money they ask for."

Looking into appropriations

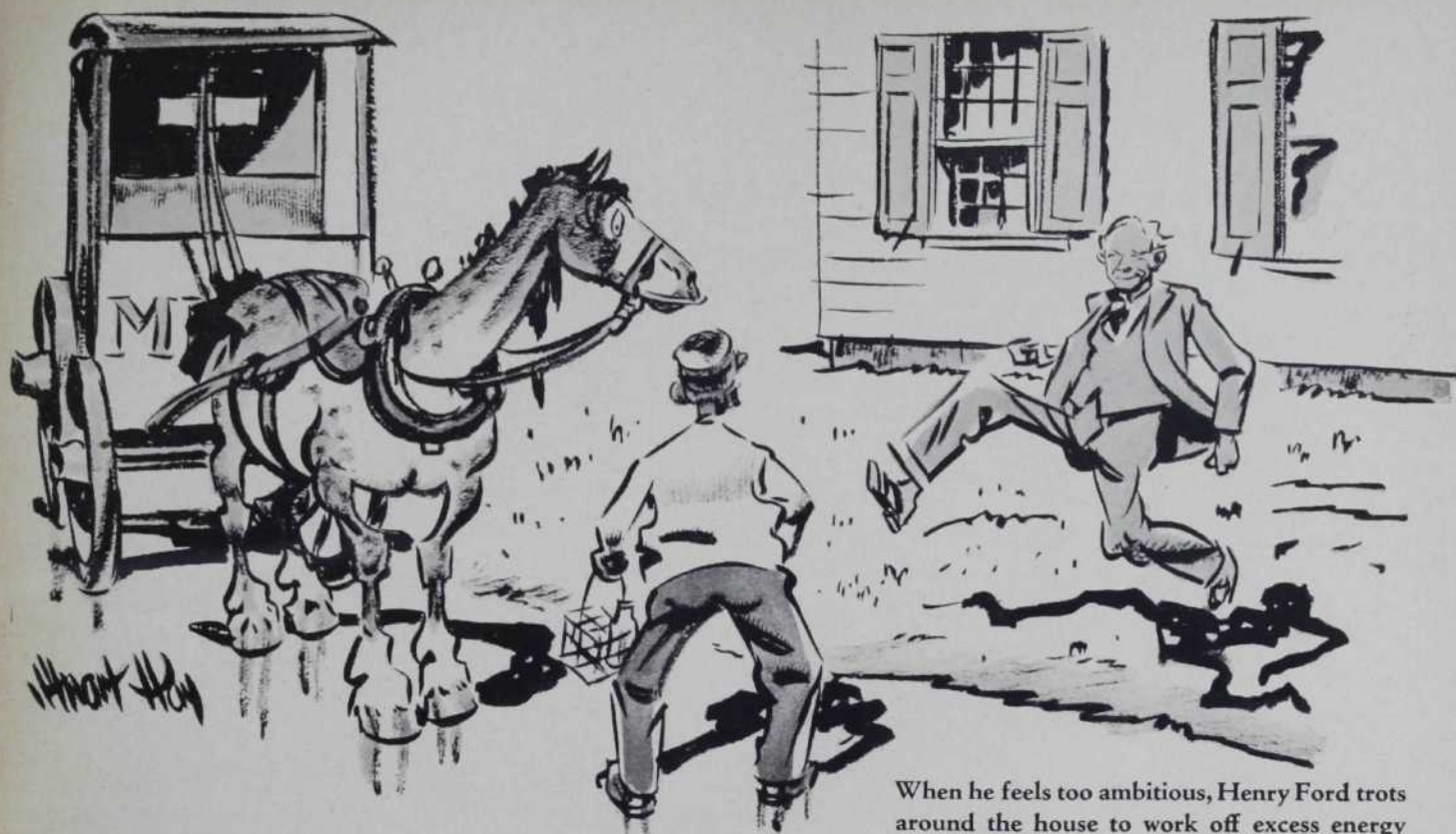
THE military affairs and appropriations committees of the two houses of Congress will look carefully at the requests for money. If Chief of Staff George C. Marshall says he wants a few millions for the Army he'll get them and no questions asked. That goes for the National Defense Commission or the chiefs of the Navy. Every department, independent establishment and free-wheeling corporation will try to get a part of this national defense money. The committees will try to sift out these requests. Back of each little gouge will be a pressure group. A state, a district, a city, an industry, a church, a squad of educators in horn-rims, influential ladies in whalebones, department chiefs, bureau chiefs, personal friends. Add these pressures together and you have the total pressure the committees must stand up under.

No controversy here. Republicans and Democrats will join in giving every nickel needed for national defense. So much money will be spent that a little chiselling will be accepted with equanimity. There will be some attempt at guidance. It is heart-warming to listen, for instance, to

(Continued on page 88)



Service station operators claim they collect average of \$4,500 annually in taxes



When he feels too ambitious, Henry Ford trots around the house to work off excess energy

Don't Bite Off More than You Can Chew

By WILLIAM A. McGARRY

A NEW YEAR always finds most of us promising ourselves to reach heights that we have missed in the past. Such resolutions are commendable but they may defeat themselves, as shown here

OBSERVERS of the human scene from time immemorial have noted that millions of potentially capable and self-sufficient men and women are held back from happiness and the attainment of their objectives by two maladies of the mind. One of these may be compared to hunger, the other to gluttony.

Contrary to popular impression, the first is the lesser evil. Society is increasing its care of the undernourished, whereas the glutton is told to go hire a doctor for his bellyache. Likewise a nation-wide effort is made to help the timid, fearful, apologetic person, but nothing is done for those who rush ahead too fast, except as most of us stick out an obliging foot to help them trip.

Many persons who are Americans first and partisans afterward are wondering if something like that is not happening today in the United States. Are we biting off more than we can chew, not only in world affairs but individually and collectively here at home? In the mad rush for a magnifi-

cent economic Moscow—which may be on fire when, as and if we ever get there—are we halting long enough to count our gains and their cost?

The score of that count on many of our most amazing engineering projects, for example, would have to be set down in red ink. Take the new Lincoln Tunnel to Manhattan. Not all the ballyhoo of LaGuardia or the wheedling of Whalen and the World's Fair could lure enough motorists through it to keep both tubes busy. One only is in use. Bus drivers will not use it in wet weather—though it is a short cut—because they regard the grades and curves on the intricate loops of the Jersey approach as perilous.

Take the dream of Muscle Shoals.

The man who built the steam plant there in the war emergency—Dr. Walter Savage Landis—says it will call for uncalculated millions in the years to come for impounding projects hundreds of miles inland to make it come partly true. "Cheap power" there may turn out to be as economical as a team of oxen competing with a tractor.

Perhaps the defense program is the logical outcome of the thinking, or lack of it, that led to these and a multitude of similar projects. We are still the richest and most powerful nation on earth, and industrially the most efficient. We can lick the world. Pooh for Gargantua. Didn't we invent Paul Bunyan? Why not a navy to rule the seven seas? Said Mister Dooley:

Napoleon had an army av a hundred thousand min;
He marched thim up a hill and thim he marched thim down agin.

An incalculable amount of human energy goes to waste as a consequence of false starts, and no one knows how



The Bible tells us the Tower of Babel wasn't finished because of confusion of tongues. It is likely that confusion of ideas also had much to do with it

much positive, dynamic leadership is lost to the general well-being. Creative intelligence is thwarted by the inability to discipline and direct its own vision. Invention is delayed. Production lags. Millions who might have much have little or nothing, and millions more are frustrated and unhappy even though they manage to get by. Good minds wear themselves out, just as an engine without a governor will shatter itself to pieces running wild.

A fault in an individual multiplies in much more than the straight mathematical ratio when it becomes endemic in a group, a business, an army or a nation. The late Judge Elbert H. Gary told me he had discovered in boom years that operating the vast mills of the U. S. Steel Corporation at full capacity was an expensive process. The corporation made bigger profits at 85 per cent of capacity, on the same price basis.

The reason is that any machine run

at top speed—and that goes for the human body—suffers a lot of minor breakdowns. If full capacity is to be maintained, these must be repaired by emergency crews, under high pressure and at great cost. The best of such repairs are make-shift, and finally the entire plant must be shut down for complete overhauling.

Henry Ford has been preoccupied with this problem of the overambitious all his life. By any standard of measurement he is one of the most successful men in all human history. His bitterest critics concede that he has made a colossal contribution to national prosperity. But what is far more important to Ford, to his family and friends and to his fellow-countrymen—if they only knew it—is that Henry Ford is a happy man. Restive, energetic and still active at 77, he has learned how to make each moment count so that he ends each day content, yet eager for each tomorrow.

The point of all this is that Ford doesn't get that way without a continuous grasp on and control of himself. A few years ago he threw at me one of those cryptic remarks for which he is famous, so self-evident as to sound fatuous until you know what is in his mind.

"A thing can't be done," he said, "until it can be done."

A little at a time

WHAT he was thinking was that, if man had applied his knowledge of natural physical laws, he could have had airplanes, radios, telephones, motor cars and other modern inventions in the days of Nebuchadnezzar. Man knew about the existence of these laws far back in the dawn of recorded history. The reason he didn't apply them is generally ascribed to superstition, belief in the occult, mass stupidity. But Ford saw these barriers to progress as effects. He saw the cause as the business of good minds biting off more than they could chew; trying to gobble up omniscience or a knowledge of the infinite before they had digested and adjusted their lives to the finite facts at hand.

"A weakness of all human beings," he said, "is trying to do too many things at once. That scatters effort and destroys direction. It makes for haste, and haste makes waste. So we do things all the wrong ways possible before we come to the right one. Then we

think it is the best way because it works, and it was the only way left that we could see. Every now and then I wake up in the morning headed toward that finality, with half a dozen things I want to do. I know I can't do them all at once."

"What do you do about that?" I asked.

"I go out and trot around the house," said Ford. "While I'm running off the excess energy that wants to do too much, my mind clears and I see what can be done and should be done first."

How Ford got where he is by intense application to what he considered his most important task of the moment, no matter how humble, is now one of the nation's well-worn sagas of success. But there is plenty of other evidence that what might be called his starting point formula will work for any one who applies it, with results limited only by ability. Obversely, there is evidence that biting off more than you

can chew actually halts your progress in any line of effort.

It is an axiom of law and logic that you cannot prove the negative, at least to others. But all of us can prove it to and of ourselves, to the satisfaction of our minds if not of our egos. We can do that by analyzing our failures honestly, not to find out how circumstances, competition or enemies blocked us just when some prize was almost in our grasp, but to determine how we failed to anticipate and get over, around or through the obstacle.

Nine times out of ten it will be found that the failure was not due to any lack of warning signals of coming events—which *do* cast their shadows before. It was due to heedless rushing ahead, trying to do too much, inadequate preparations, lack of proper tools or the knowledge of how to use them, and even of what is often called overwork, but is so frequently nothing more than trying to win a mile race in the first quarter. Trace these faults back to their origin, and in most cases it will be found that this was the failure to master completely the first part of the job.

Too much for one man

INVARIABLY that is something so simple that the mind in too much of a hurry thinks it is easy and that anybody can do it. While the late E. H. Harriman was climbing to the height of his railroading career, the locomotive builders—in response to demand by Harriman and his competitors—were steadily improving their prime movers. A day came when a statistical associate discovered that these units were capable of operating divisions of 250 miles or more, instead of the standard 150 miles. Millions could be saved, he told Harriman, by extending the distances and cutting out a lot of unnecessary division points.

Harriman turned down the plan because the real limiting factor was the mental capacity of division managers. No one man he had been able to find could look after such details as low joints and loose spikes for more than 150 miles.

Albert Tangora has been world's champion typist seven times in a row. The year he won for the sixth time with 136 words plus per minute for one hour he analyzed his errors and found that he was holding himself back by pushing himself forward too fast. He had made 54 mistakes and, under the rules, each one penalized him ten words, for a total of nearly ten a minute. He reasoned that, if he could cut his errors in half by cutting down the number of strokes per minute, or gross speed, he would be getting a better record with less work. By that process, plus continued practice on the words in which

errors had appeared, Tangora ran more than 141 words the next year.

Tangora hasn't been in a contest in recent years, chiefly because of commercial barriers to his meeting the only man who ever beat him. He's so far ahead of the others that there is no competition, one recent contest in which he didn't appear having been won with 91 words a minute. Yet Tangora predicts that somebody will beat his record some day. He thinks it may be shoved up to 160 words, or more. His reason is that he has done around 260 words in dazzling five minute bursts of speed. Somebody, he believes, will locate incredibly simple little details that he has overlooked for saving fractional time, and there'll be a new record.

Most noted men with enormous reserves of energy, aware of the value of a deep breath, take time off to rest whether they feel the need of it or not, and before they get tired. All of them have testified that such rests, in addition to the beneficial effects on the nervous and muscular systems, definitely clarified their minds, enabling them to see perfectly simple solutions invisible before because they were trying to do too much, they were too close to their problems, in too much of a hurry, and their brains were tired.

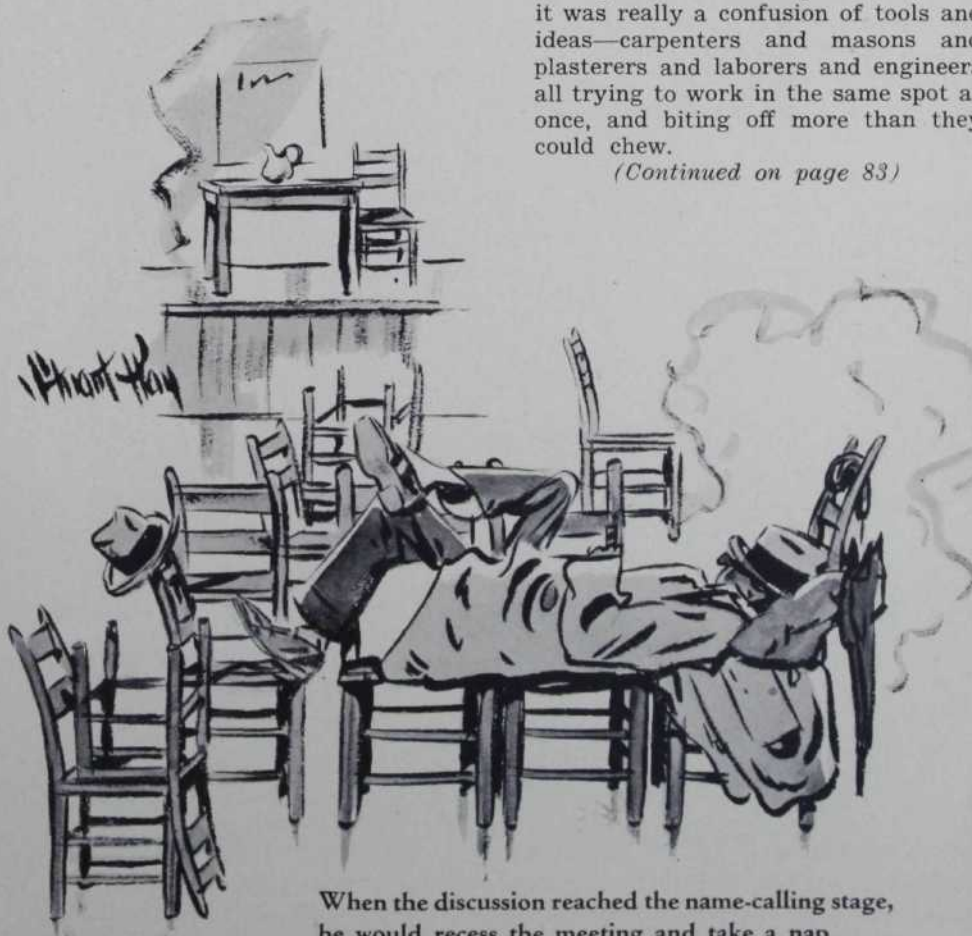
A mine union leader said of ex-Sena-

tor George Wharton Pepper of Philadelphia some years ago that he had settled a strike by taking naps. Pepper had been named as mediator. When operators and miners get together, no holds are barred. Pepper sat between the warring men, gaining a little here and a little there. When the discussion got to the name calling stage he would recess the meeting for 30 minutes and send each group away separately. Then he'd take a nap. When the meeting resumed, both sides would be cooled off. Ignoring the points still at issue for the moment, Pepper would open the session by congratulating both sides on their fair-mindedness, recount the agreements already reached, and get the meeting peace-minded by bringing up some minor points on which he knew there would be little if any argument.

Taking small bites

A SCOTCH friend of mine is fond of saying that the way to tackle a job that seems too big is to bite off a little of it in spare time. It is astonishing how rapidly the parts begin to fall together and the size of the whole job shrinks when this method is followed persistently. Cantilever bridges and other great engineering projects are built a little at a time. The Bible tells us that the Tower of Babel was never finished because of the confusion of tongues among workmen. It is quite likely that it was really a confusion of tools and ideas—carpenters and masons and plasterers and laborers and engineers all trying to work in the same spot at once, and biting off more than they could chew.

(Continued on page 83)



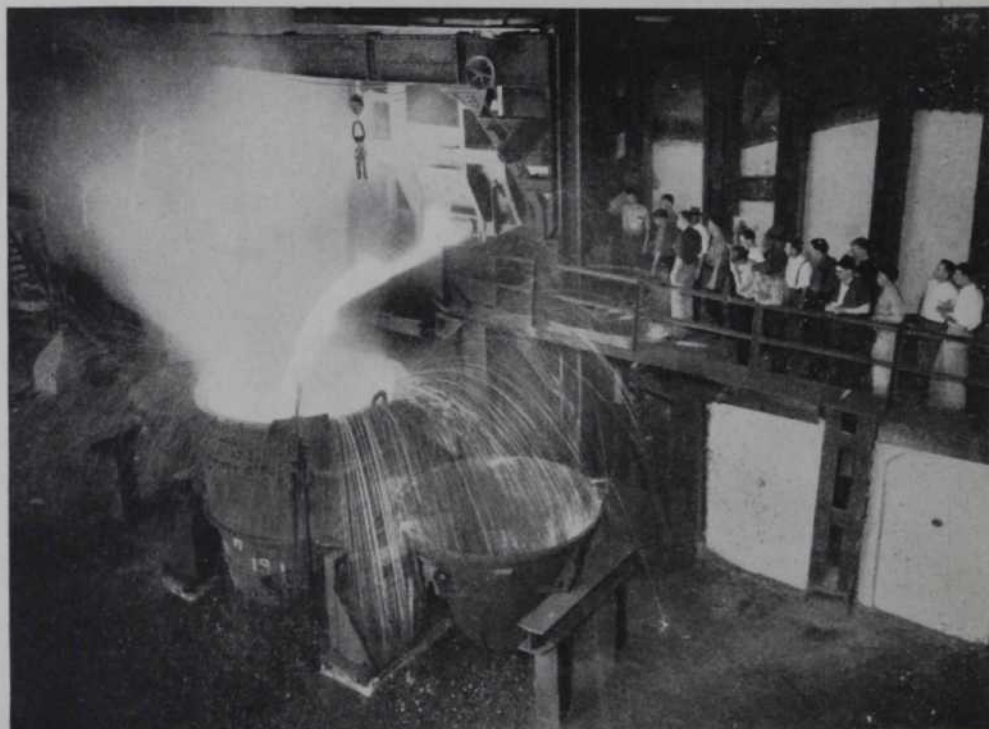
When the discussion reached the name-calling stage, he would recess the meeting and take a nap

Industry Trains Its Leaders

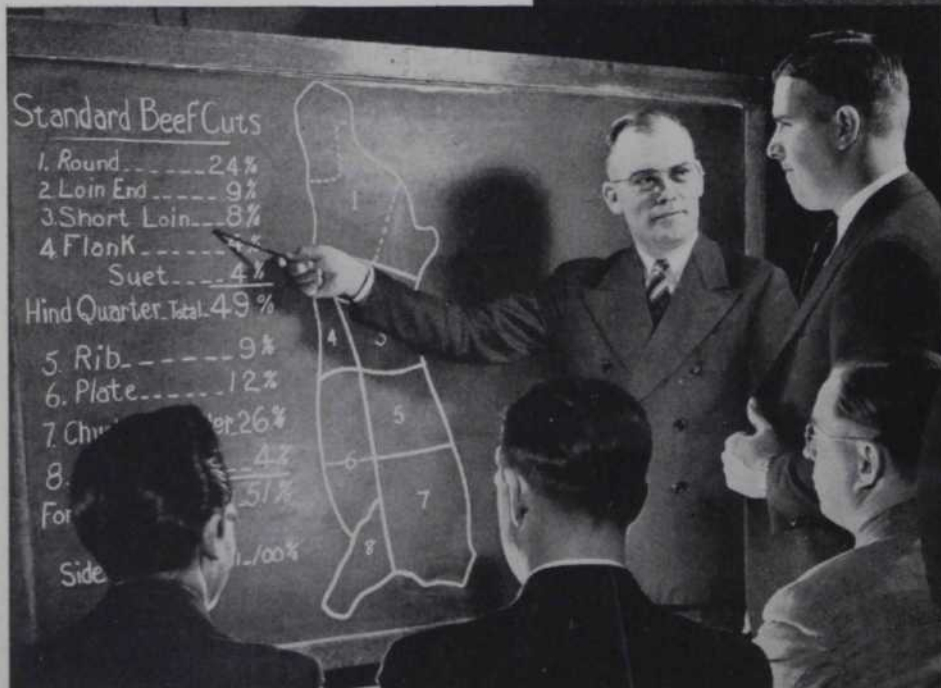
By HOWARD STEPHENSON

IN A determined search for its leaders of tomorrow, American industry is putting a premium on brains. Scoffers who smirk "Marry the boss' daughter to get a good job" just don't know. The way to find out the 1940 attitude of American industry toward youth is to visit the schools and factories and laboratories, study the records and see what is actually going on. This I have done. Here's the report:

Big manufacturing and service corporations will spend more than \$12,000,000 this year, more next year, to find and train promising young minds for key positions in industry. This is no Johnny-come-lately program bred of war hysteria. Big business has been carrying it out steadily, in some cases for more than 20 years. It is a wholesome youth movement that has somehow missed the headlines. But it is growing fast and the results already produced are impressive.



Bethlehem Steel Co. recruits students for training from graduating classes. Here are some of them studying an open-hearth



Employees in a wide variety of jobs are enrolled in Swift & Company's training course for future executives. Photo at right shows one of them at work



for Tomorrow

EFFORTS of some 500 industrial firms to help American youths find themselves constitute a real youth movement which disproves the modern complaint that the frontiers are closed



These three Westinghouse Scholarship winners were only members of their Carnegie Tech class to win "A" averages

Some 300 high school graduates, destined to be engineers, researchers, business administrators of the future, are entering American universities and technical schools this fall—thanks to scholarships established by industrial concerns. They won coveted places in freshman classes on several score campuses through competitive examinations. One other factor bore equal weight with their scholastic records. It was character. Modern big business follows the old-fashioned copy-book rules in picking out the "big brains" to run it in the future.

At the same time, hundreds more young college graduates are preparing to enter the research laboratories of the large universities where they will continue study in specialized fields—supported by fellowship endowments by industry.

Add to these several thousand hand-

Republic Aviation asked local authorities to recommend best fitted citizens for employment

picked 1940 college grads who have spent this summer "breaking in" on real jobs with big industrial concerns. Many of these will spend from six months to two years in specialized training courses. It may seem a paradox, with so much public attention being given to unemployment problems, but important American industries actually make a personal canvass every year in search of likely leadership timber. In the 1940-41 college year, representatives of at least 30 big com-



Sons of Chrysler employees are taught craftsmanship by volunteer workers for two hours each week



panies will interview 8,500 top-rank college seniors. These job scouts often vie with each other to land outstanding candidates for jobs. There are more than 1,000,000 undergraduates in American colleges. Big business is hand-picking those with the best brains.

Why all this bother? Why not wait for them to call around and make out application forms? One job scout, a Ph. D. who spent ten years as a teacher before a big chemical firm hired him to "go out and shake the bushes," as he

puts it, said that at a time when many pharmacy college graduates in large cities were gladly taking \$20 a week to work behind prescription counters, his firm had difficulty rounding up three men qualified by knowledge, skill, character and personality to undertake an important piece of chemical research in the company's own laboratory.

Whether true or false, industrial personnel men *believe* it is always hard to find a good man for a specific job and that is why they devote so much effort to catching and training the young.

This effort is very real. To the youth who qualifies to enlist in an industrial company's training school for college graduates, it opens the way to a career based on brains.

Some companies do not wait for prospective job material to finish college. They go after boys of 16 to 18, star graduates of high schools, alert enough to enter and win scholarship competitions.

The electrical industry has led the parade in establishing a youth training program. It was influenced earlier than others toward this foresightedness by the fact that, after 1890, the industry doubled in size every five years. Skilled operators in the electrical field were

scarce and administrators were rare; they had to be trained.

Largest single undertaking stemming from this need is the George Westinghouse Scholarship plan, designed to provide "work-learn" education for 50 outstanding students at the same time at Carnegie Technical Institute in Pittsburgh. Ten scholarships are awarded annually to boys who attain the highest grades in competitive examinations and who qualify as to character. Winners receive \$50 a month for a five-year period. In this time they complete eight semesters of college class work and receive the equivalent of two years of industrial experience.

Learning at work and school

COLLEGES such as Antioch, University of Cincinnati, Valparaiso and others also conduct programs whereby students sandwich terms of service in industry and commerce in between college periods. The plans are practical and work excellently. The new phenomenon is for an industrial company—in this case the Westinghouse Electric & Manufacturing Company—to take the initiative in instituting the program.

While the Westinghouse educational plan is one of the oldest and perhaps

the most comprehensive in American industry, it is by no means alone. Cities Service Company and subsidiaries have recently set up the Henry L. Doherty Educational Foundation, open to sons and daughters of employees. In its first year, seven girls and six boys, living in 11 states, have started college careers which they could not otherwise have had. Bases for the awards are character, talent, scholastic attainments and ability, in that order.

Bethlehem Steel, to pick another at random, each year permits a selected group of Massachusetts Institute of Technology post graduate students to study technology at its Lackawanna plant. This kind of activity, it is true, is not a means of financing an education. But it does encourage the merging of theoretical college training with practical shop work, and thus broadens considerably the horizons of the engineering students.

The New York Central Railroad selects candidates each year for scholarships in the Commerce School of New York University. Children of Pennsylvania Railroad employees are eligible for a number of scholarships set up by individual company officials. Armstrong Cork Company helps its employees to take extension courses in nearby colleges.

The du Pont Fellowship Plan for graduate students was put into operation in 1918 by E. I. du Pont de Nemours & Company. Grants of \$400,000 have been awarded to 450 individual fellowship holders, and a new plan, started in 1935, offers careers to those who possess doctorates in science.

Fellowships have been established at 20 colleges, universities and technical schools, and postdoctorate fellowships at Cornell, Harvard, Ohio State, Illi-

(Continued on page 87)



About 170 employees are taught academic subjects at the Goodrich-University of Akron Institute by faculty instructors

Young engineers are given a finishing course by company engineers at the Glenn L. Martin Training School in Baltimore



Various monetary issues affecting the domestic economy call for early consideration by Congress



What Will We Use for Money?

By ARTHUR WHIPPLE CRAWFORD

THE MILLIONS of citizens who listened to the speeches of presidential candidates in the recent campaign heard but little about monetary policy.

Many undoubtedly assumed that this highly controversial subject, much debated in earlier years of the New Deal and in various previous campaigns, no longer involved moot points. Such an assumption was far from correct.

New monetary issues are shaping up for consideration in Congress in the early months of 1941.

In specific fields of monetary action, legislation is necessary unless emergency powers are to lapse. Studies in progress before the Senate Committee on Banking and Currency under a mandate from the Senate will open up virtually all angles of statutory and administrative policy affecting currency, credit, gold and silver.

Impelling motives for comprehensive

QUESTIONS of international monetary policies and foreign exchange seem pretty complicated and distant. Yet every one with a savings account or an insurance policy is going to be affected by the answers. The problems are discussed here in understandable terms

discussions are provided by present inflationary possibilities, by chaotic world conditions, and by new mechanisms of international exchange introduced by the totalitarian nations of Europe.

Major questions requiring early consideration include:

Shall the President's power over the gold content of the dollar, which means over the value of our monetary unit in world markets, be continued beyond June 30, 1941, its present expiration date?

Shall the authority to operate a \$2,000,000,000 Exchange Stabilization Fund, created to promote stability among world

currencies and recently drawn upon to assist China and Argentina, be continued beyond June 30, 1941?

By what statutory method shall the present huge volume of excess banking reserves, caused chiefly by the tremendous movement of gold from countries ravaged by war and economic distress, and to a lesser extent by American silver policies, be prevented from contributing to disastrous inflation in the course of our defense program?

Shall the United States continue to buy foreign as well as domestic silver at arbitrary prices, notwithstanding the obvious weaknesses that have developed in the plan?

What shall be future policies with respect to the dual roles of the Federal Reserve System and the Treasury in monetary management and with respect to their objectives in the control of currency and credit?

Will the present form of gold standard of the United States prove outmoded and our huge gold stocks lose their value in a future world economy in which the totalitarian powers rely upon exchange controls, barter and clearing agreements?

In the campaign recently ended, Republican Candidate Wendell L. Willkie had little to say on monetary issues beyond his charge, several times repeated, that President Roosevelt, by devaluation of the dollar, abandoned the principle of a sound currency pledged by the Democratic platform of 1932. The President ignored the charge and, in none of his campaign speeches, even mentioned monetary policy.

A new currency system

THE campaign discussions thus accomplished nothing toward clarifying in the public mind exactly what has taken place in the course of the development of a new managed currency system. A large portion of the population continues to find it difficult, perhaps with good reason, to comprehend the utility of gold buried at Fort Knox, Ky., or of silver similarly held at West Point, N. Y.

The record of monetary experimentation in the past eight years is a mixed one. Monetary devices have proved inadequate as panaceas for economic ills but have had some measure of usefulness as auxiliary weapons against adverse trends.

Such statistical evidence as is available fails to provide conclusive proof of the necessity for the policy of deliberate depreciation of the dollar which was pursued from March, 1933, until the end of January, 1934. Figures as to trends in exports and imports of merchandise and movements of gold and capital do not support completely the theory of the President's advisers that the dollar was overvalued in terms of the pound and other currencies earlier divorced from gold and that, in consequence, the United States was at a disadvantage in world trade with a resultant pressure upon domestic prices. Nevertheless, the United States cannot now retrace this step as the values of other currencies in terms of gold have changed again and again.

The objective of the depreciation of the dollar, through the abandonment of the former gold standard, purchases of gold and silver and other inflationary actions, was a higher level of commodity prices to relieve the burdens of farmers and other debtor classes and to provide profits for agriculture and industry. The results were clearly disappointing. Such advance in prices as took place probably was not due to monetary factors. The price of gold was advanced 69 per cent between March, 1933, and January, 1934, but the commodity price

level went up only 25 per cent in large part if not entirely because of other reasons.

In the period of the enactment of the Gold Reserve Act and the Silver Purchase Act of 1934 and the Banking Act of 1935 and the negotiation of the tripartite agreement with European nations in 1936 the results of monetary management appear more favorable than during the first year of the New Deal. It is, however, impossible to apportion credit for improved conditions inasmuch as an extensive program of economic planning was also in effect.

When reserve requirements were increased to halt a speculative boom late in 1936 and early in 1937 there was occasion to question the possible adverse effects of restrictive controls.

Monetary expansionist policies contributed in some degree to the upturn in business which followed the recession

of the latter part of 1937 and early 1938.

Under war conditions existing since the fall of 1939, some monetary powers have been exercised in efforts to moderate sharp fluctuations in the markets threatened by disturbances abroad and by the defense program.

There were abundant reasons for the adoption by the Senate in August, 1939, of a resolution of Sen. Robert F. Wagner of New York directing its Committee on Banking and Currency, of which he is chairman, to make a comprehensive study of monetary and banking policies and administrative machinery. No study of so wide a scope has taken place since that of the National Monetary Commission prior to the enactment of the Federal Reserve Act a generation ago. In no period of American history has the monetary system undergone a more complete reorganization

(Continued on page 78)

Always present is the specter of a future world economy in which exchange controls will tend to decrease the usefulness of the gold standard



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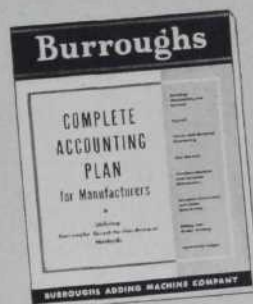
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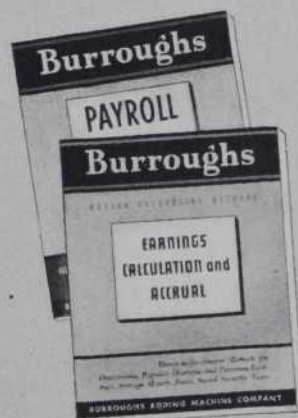


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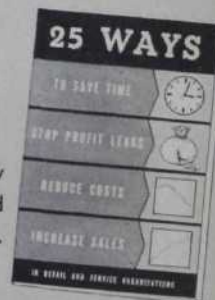


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A Pattern for Labor Legislation

By EDWARD S. COWDRICK

IF THIS COUNTRY is to develop adequate national defense quickly and economically, all statutory obstacles to harmony between management and labor must be removed

AMONG THE problems which will confront Congress in the history-making year 1941, none is more important or more difficult than a review of federal labor legislation. When this article was written it appeared that adjournment of the 1940 session would leave this subject at loose ends. Several important bills were pending, and some of them had been passed by one house. Now all this proposed legislation has been wiped out and Congress will have to start over again. In the meantime, the national defense program calls insistently for acceleration of production, for freedom from stoppages, and for operating costs at least moderate enough not to start an ascending spiral of inflation.

For determining just what program of labor legislation is necessary or desirable in the coming year, the responsibility is upon Congress rather than upon the Executive or the courts. In meeting this responsibility, Congress should be guided by these principles:

1. In general, the program of labor and social reform has gone fast enough and far enough for the country's present needs. At least until our economic system and our democratic methods can catch up with existing legislation, the need will be for adjustments and modifications rather than for new projects.

2. In seeking solutions of labor problems, Congress cannot put the figures down on a clean slate. Events of the past eight years cannot be rubbed out. It will be necessary to start from where we are, not from where we were in 1932, or from where someone thinks we ought to be now.

3. New or modified legislation should be planned with a view to the requirements of the defense program. By democratic processes this country has to do, in a shorter time, approximately what Hitler accomplished through methods that ruthlessly scrapped the rights of individuals.

4. In the next few years, Congress will

use its taxing power to the limit to raise money for national defense and for other purposes which the Administration will look upon as essential. Consequently, social and labor legislation should not call for increased expenditure or higher tax levies. This applies particularly in the field of social security.

The Congress of 1941 will be called upon to consider legislative proposals in the separate fields of collective bargaining, of wages and hours of labor, and of social security. Questions also will arise regarding conciliation of industrial disputes and the prevention of sabotage and fifth column activities.

Revision for labor law

THE field of collective bargaining now is monopolized, so far as concerns federal legislation unrelated to transportation, by the National Labor Relations Act. This law fairly shrieks for revision. Amendments passed the House of Representatives in 1940 but, when this article was written, they appeared to have scant chance of adoption by the Senate before adjournment. At this late date, arguments over whether Congress acted wisely or unwisely in passing the National Labor Relations Act have become academic. What needs to be done is to start from where we are and make the law as fair and as workable as possible. With that end in view, the following amendments are suggested for 1941:

1. Employees should be free to organize and bargain collectively without interference or coercion by any one. Yes, I know all the arguments of some elements in organized labor against this proposal. It should be clear, however, that arguments advanced by organizations which thereby admit that they cannot maintain

their membership without threats and violence should be accepted at much less than face value, if at all.

2. Employers should be free to express opinions on unionism and collective bargaining, especially when employees request them to do so, provided no coercion is involved. This proposal bears upon the right of free speech, which will be sharply curtailed if the United States Supreme Court sustains the Labor Board's interpretation of the present law.

3. The law should recognize that it is possible for employees, no less than for employers, to commit unfair labor practices. This does not mean that the National Labor Relations Board should be burdened with police power. The purpose would be attained if the law were amended simply by providing that workers or labor organizations guilty of unfair labor practices cannot avail themselves of the Board's services.

4. Craft unions should be protected against enforced absorption by industrial unions of production workers. In general, large or small groups of employees should be permitted to choose their own agencies for collective bargaining. This applies to independent organizations, provided they are not under continuing domination by the employer. Organizations suspected of employer influence should be allowed to purge themselves of the taint of illegality without being destroyed or "disestablished."

What the present law means in this last respect is shown by the decision of the United States Supreme Court in the Newport News Shipbuilding and Dry Dock Company case (December 4, 1939). In upholding a Labor Board decision which outlawed a plant organization of employees, the court said:

The court below agreed with the respondent that, as the committee had operated to the apparent satisfaction of the employees, as serious labor disputes had not occurred during its existence, and as the men at an election held under the auspices of the committee had signified their desire for its continuance, it would be a proper medium and one which the employer might continue to recognize for the adjustment of labor disputes. The difficulty with the position is that the provisions of the statute preclude such a disposition of the case. . . . In applying the statutory test of independence, it is immaterial that the plan had in fact not en-



A Metropolitan policyholder gets married.



There is a birth in the family of a policyholder.



A son begins to support himself.

When Circumstances Alter Cases

WHEN YOU BUY a life insurance policy, just as when you buy anything else, you want to spend your dollars in the wisest possible manner.

Metropolitan also wants you to do this. That is why its agents are given continuous training in how to help you select the kind of life insurance that best fits your needs. Moreover, through the agent you have access to the counsel and advice of Home Office experts.

But the insurance program that fits your needs today may not fit your needs tomorrow. Changes in your income, or in your family obligations, make it advisable for you to review your life insurance program from time to time.

Suppose, for example, a policyholder gets married, or there is a birth in a policyholder's family. Each may call for a change of beneficiary in present policies, and perhaps the addition of new policies.

Or again, a policyholder gets an increase in salary. This may mean that he should expand his life insurance program.

Another policyholder's income may be reduced, due to unemployment, a busi-

ness reversal, extended illness, or new and unexpected expenditures. In some cases, his insurance may be rearranged on a more modest basis. In other cases, it may be possible to help him keep his present insurance program by changing his premium payments to more convenient intervals.

Decreases in responsibilities sometimes suggest changes, too. Daughters marry, a beneficiary dies, a son begins to support himself, or an older policyholder decides to retire. In almost every case, it is advisable to review the manner in which the insurance money is to be paid.

These are only a few of the countless problems that develop in the families of Metropolitan's 29,000,000 policyholders.

As such problems arise, your Metropolitan agent is always ready to help you solve them, and to give you the benefit of special training and experience. In fact, Metropolitan maintains, at the Home Office, a number of departments especially equipped to assist the agent in keeping your insurance program fitted to your needs.

In just one of these departments, a group of experts is kept busy, day in and day out, considering more than 4,000 proposed changes each week in Ordinary policies alone. In another department, more than 4,200 proposals affecting Industrial policies are considered each week. Metropolitan makes more than 11,000 changes of beneficiary each week, and more than 75,000 so-called transfers, occasioned by changes of address and other causes.

These are only a few of the many types of changes which Metropolitan is called upon to consider. If you are a Metropolitan policyholder, we urge you to keep the Company informed of any changes which may arise in your insurance needs. It is especially important to inform the Company promptly of changes in your address, so that your Metropolitan agent may keep in touch with you and give you the benefit of his services.

For, as a Metropolitan policyholder, you are entitled at all times to the advice and help of your agent, without obligation.

A business promotion or salary increase.



An older policyholder decides to retire.



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gendered, or indeed had obviated, serious labor disputes in the past, or that any company interference in the administration of the plan had been incidental rather than fundamental and with good motives. It was for Congress to determine whether, as a matter of policy, such a plan should be permitted to continue in force. We think the statute plainly evinces a contrary purpose, and that the Board's conclusions are in accord with that purpose.

This means two things:

First, that the National Labor Relations Act does not give workers complete freedom in selecting collective bargaining agencies.

Second, that this freedom, if granted at all, must be granted by Congress and not by the courts.

5. Employers should not be required to recognize unions led by men who advocate the overthrow of the United States Government or of the existing economic system. Under the present law, a communist union can be designated as exclusive bargaining agency, and the employer can be forced to deal with it, while at the same time an employees' voluntary organization may be barred simply because it is the successor of an earlier organization to which the employer gave some support.

6. Particularly in view of the need for uninterrupted production of munitions and other national defense supplies, the law should prohibit strikes

in violation of contracts. It also should forbid picketing by one union of an establishment where a rival union has a valid contract, and picketing for purposes of organization when the union has no members in the picketed plant. If events make it imperatively necessary to do so, Congress perhaps should enact some legislation to prevent all strikes in industries essential to national defense. This subject was being given serious attention inside and outside Congress in the closing days of the 1940 session.

7. Except with the consent of all parties concerned, the Labor Board should not be authorized to establish bargaining units larger than a single plant. Under the present law, the Board designated a C.I.O. union as exclusive bargaining agency for all the longshoremen on the Pacific Coast, regardless of the preferences of local groups. Later the Board ordered the Pittsburgh Plate Glass Company to bargain with a C.I.O. union for the employees of six plants, although it was conceded that, in the largest of these plants, a majority of the workers opposed the union.

8. An employer should have an unqualified right to a Labor Board election if he is in doubt which, if any, organization is the choice of a majority of his employees.

9. The law should make it clear that

the requirement of collective bargaining has been satisfied if the employer and the representatives of his employees have conferred and adjusted differences as they arose. Neither party should be compelled to agree to a formal contract. An amendment to this effect would clear up the meaning of collective bargaining, which has been defined by the Labor Board as something far different from what most employers thought it was.

Advisory opinions would help

10. AN employer who has genuine doubts about what he must do to comply with the law should have the right to get advisory opinions from the Labor Board or its regional officials. These opinions are now given hesitatingly and reluctantly, if at all. The suggested change would avert many disputes and threatened stoppages of work.

11. The law should prohibit discharge for union membership, but it should not protect an insubordinate employee or one who spends his time working against his employer's interests. As the law is now interpreted, it is extremely difficult, and may be hazardous, ever to discharge an active unionist.

12. The law should make it easier, not harder, for an employer to get rid of foreign spies, saboteurs and fifth columnists. This suggestion should need no argument in view of the requirements of national defense and the revelations made by the Dies Committee and the Federal Bureau of Investigation.

13. Strikers guilty of violence and other illegal acts should not be protected in their status as employees. Employers should not be forced to take them back when strikes are called off.

14. Prohibition of discrimination in "hire and tenure of employment" should not require an employer to pay back wages to men never on his pay roll. In the Waumec Mills case (September 1939), the Labor Board found that the company had refused to hire two men, never before on the pay roll, presumably because of their past union activities. It ordered an immediate offer of employment with remedial back pay from the date of the men's application for work. In the Nevada Consolidated Copper Corporation case (August 1940), this doctrine was extended to cover union members who had lost their standing as employees and who had not even applied for work, on the theory that, if they had applied, they would not have been hired.

These proposals by no means include everything that might be desirable.
(Continued on page 92)

Creative art in a factory



C. E. Tuttle, President
Rustless Iron and Steel
Corporation, Baltimore, Md.

"In the history of our company we believe that we see a refutation of the defeatist philosophy that no frontiers remain in America. Rather we believe that we see a true expression of the limitless opportunity that is in America. . . . Creative impulse is not limited in its expression to such fields as art and literature, but exists just as truly in the minds and hearts of men who build an industry and make its products. The discovery of stainless steel has occurred within the memory of many of our youngest employees. Today it is an expanding industry of major importance."

The CASE for INDUSTRIAL CHEMISTRY



LAMBERT

AN EXAMINATION of the reasons for the growth of the American chemical industry together with an interpretation of relevant developments now shaping in the field of public policy

The Practical Altruism

INDUSTRIAL CHEMISTRY is at once a symbol and a reminder of national progress on the American plan. The benefits flowing to the people from the great laboratories are as real as they are apparent. What is commonplace today was yesterday's vision, the fruit of patient search and inspired understanding. Unfortunately, the will to push forward new salients of knowledge needs more than purpose for success. For the nourishment of the scientific spirit, material means must be continually available. Enterprise must be free, not only to play the light of research where discovery waits upon determination but to lay up a surplus from its income as the wherewithal to persist in triumphs over the unknown.

Whether the light of research is to shine with revealing intensity or be dimmed to a faint glimmer is a fateful question currently raised by the mounting toll of taxes. Extinction of surplus funds by oppressive levies would mean extinction of research on the broad front where it has been boldly and usefully practiced. Lapse of great research programs might be fatal to companies which have underwritten new ideas as insurance of their corporate future. How poor the people would be made by loss of the exploratory initiative of free enterprise, the beneficent contributions of private research eloquently suggest.

Science in the service of business, as the record of its accomplishments convincingly affirms, is no cloistered abstraction to be nurtured in academic solitudes, but a productive, workaday instrumentality responsive and contributory to human needs and aspirations. How well the scientific method has assured "the more abundant life" has eminent answer in the words of Dr. Karl Compton, president of Massachusetts Institute of Technology. To quote:

Science creates new opportunities. There is real danger that, in the present activity of labor to demand more wages and of government to demand more taxes to support its altruistic aims, the demands may exceed the supply. . . . The only hope in such a situation is for science still further to add to man's ability to produce desirable things. In fact, had it not been for the past achievements of science, our wages and standards of living would still be, for the masses of people, at the primitive levels of constant struggle against starvation and suffering.

However exalted the political promise of the good things of this world, improvement of the social and physical aspects of the nation must ultimately come from the laboratories. What the great commercial research establishments have done to enrich the life of the common man, make it easier and safer, is revealed in this, the ninth in a series of articles on the free enterprise system. Fortunate the land where private wealth is free to substantiate in the public interest the soaring vision of the scientists.

The Case for Industrial Chemistry

This system of free enterprise not only gave direct encouragement to the application of scientific discoveries to the production of wealth, but the expanding scope of business organization made it possible to utilize such discoveries with great effectiveness. In turn, the growth of wealth provided the means essential to the systematic conduct of large-scale scientific research. Thus science and social organization have made possible the highly productive but complex and baffling civilization of our time.

—HAROLD G. MOULTON in
"Science and Society"

GOLD AND THE ELIXIR OF LIFE—wealth and health—these are what the alchemist of old sought.

Wealth and health—the more abundant life—that is what modern politicians all over the world are promising their people.

It is a grand old promise—a better place to live, more comforts, greater leisure, the best of care when sick, security against old age—touching to the quick the most cherished desires of each one of us. Since the bitter night eons ago when the great, great granddaddy of our caveman ancestor, a naked, grimy, half-starved, flea-ridden weakling, shivered in the blackest corner of his damp den, those same hopes have lured us on, forward, upward, through sweat and blood and tears. An insulated, air-conditioned home, a car in every garage, time to play, expert medical attendance and scientific hospitalization, an old age security that forever banishes the wolf from the doorstep, these are today's promises here in the United States.

These political leaders have always been promising. The Kaiser, "a place in the sun"; Henry of Navarre, "a chicken in every peasant's pot every Sunday"; Caesar, "no Roman citizen shall starve."

But they always make the same old demands:

"If we are to defend you against those who would exploit you, you must follow us and give us power," and then "pay the taxes without grumbling, so you shall have bread and circuses."

Those who make good

ALWAYS the same promises and the same bargain: power for security and taxes for a mess of pottage. But the promises have been made good throughout all the ages, not by these politicians, but by a great army of obscure workers—explorers, traders, merchants, herders, farmers, miners, fishermen, inventors, mechanics, industrialists—businessmen all of them.

Is it not ironical that the planners who are forever promising the richer, safer, happier life are today doing a good job of sabotaging the research machinery which is, by long odds, the cheapest, most efficient, least painful means that the human race has ever discovered to assure the more abundant life for us all?

Set promise against performance. The record tells the story as

200,000 things grandpa lacked

It has been estimated that more than 200,000 products entirely new to man have come from chemical laboratories since 1914. At that time, the research chemist began to consider substances such as fibers, metals, wood and rubber as the end products of natural synthesis and as compounded from raw materials that are only present in abundance in the air, earth and water. With the aid of the fourth element—fire—the research chemist has synthesized a new world from the ancient elements. The demands of new developments such as the synthetic textile, automobile, aircraft, radio, refrigeration and air-conditioning industries have been met by the invention and introduction of artificial fibers such as rayon and nylon; plastics of all types, artificial rubber, new alloys, solvents, detergents, textile assistants, dyes, soaps, glasses, etc.; and by the devising of procedures and methods to use energy at every extreme of pressure and temperature.

—George W. Merck, President, Merck & Co.

Building a better world

Research is one of the best forms of security for capital invested in industry. There is a direct relation between the research rating and the security ranking of the leaders of American industry. The science story appears on the front page today for the reason that the achievements in the field of pure science are changing the face of the world.

—Maurice Holland, Director of Division of Engineering Research of the National Research Council



KEYSTONE VIEW

The old alchemist promised gold and the "elixir of life." So does today's politician, but at the same time he passes laws that handicap pioneering research which, although it makes no rash promises, is making greater wealth and longer life a reality

The war on unemployment

Scientific research has opened up new avenues of employment for countless thousands through the development of new products which gave birth to new industries. . . . In 1900, the horse and buggy business gave jobs to around 1,000,000 persons. But in 1937, the automobile industry furnished employment, in making, selling, and servicing cars, to over 6,000,000 persons. Fifteen of our major manufacturing industries of today have been developed since 1879, and it has been estimated that these 15 industries have created, directly and indirectly, 15,000,000 new jobs. On the basis of these figures, at least one out of every four persons gainfully employed today owes his job to one of these 15 industries having their origin wholly or in part in developments resulting from scientific research.

In the du Pont Company, 12 new lines accounted for about 40 per cent of the total sales during 1937, and these have been developed largely during the past ten years. During this period, 7,000 additional employees were required for the production and sale of the new items. Incidentally the average price of these products was reduced 40 per cent during this period of ten years.

—Dr. Ernest B. Beuger, Assistant Chemical Director, du Pont Co.

simply as a child's primer. But, because research does not bestow its benefits in the public works undertaken amid a blare of publicity, it fails to catch our attention as does politics. Research works quietly in secluded places and accomplishes its results without wars or taxes, sweat or tears wrung from the people.

So we overlook this potent device for progress and accept its benefits as a matter of course. Because research as it now works is a comparatively new thing, we fail to understand its methods or to appraise its values, and we gobble up again the old alchemical promises of politics.

The defeat of liberty

YET, if private research is cut down in this country by regulations and taxes that eat into earnings now used for this development work, all of us, whatever we do for a living, will be hurt much more seriously than by any past depression or future inflation. A defeat of American research would be a catastrophe for our liberty.

Let us see what it means to each of us.

For the past eight years we have heard the thesis that American business has failed and that it cannot come back. Hence the Government must do something about it. It has done plenty. But with what results?

The Government has not been able to do much about unemployment which was its first and best promise and the yardstick by which one can measure its ability to restore the prosperity it accused business of wrecking. Hardly had the echoes of the campaign speeches died away before the secret was out that "the bill of particulars for creating full employment has been known a long time, but it has taken the defense crisis to make the nation use its knowledge."

This entrancing suggestion that it takes one crisis to cure another was laid before a score of leading financiers and industrialists at an informal meeting in Washington November 12 by a group of the Administration's favorite economic councillors. The Defense Commission's consultant, Richard Gilbert, was spokesman, but he was eloquently supported by Leon Henderson, Isador Lubin, Mordecai Ezekiel, Thurman Arnold, and Rexford Tugwell.

"These methods," Gilbert is quoted as saying, "are Government spending of borrowed funds; raising taxes on high-income groups which save large shares of their incomes, cutting taxes on low-income groups which turn their income immediately into purchasing power, and progressive wage increases and price cuts undertaken voluntarily by industry to grant a more balanced distribution of national income. Government spending of borrowed funds is necessary to the extent that private consumers, through the accumulation of savings, fail to buy up what is produced."

"If the Administration knows how to create employment, why hasn't it done it before?" asked one of the businessmen present.

"It always required from \$12,000,000,000 to \$15,000,000,000 of Government spending a year to do the job, not \$2,000,000,000 or \$3,000,000,000," Tugwell replied.

After eight years of floundering about, the political economists appear only to have rediscovered that what is needed is a stiffer dose of the old alchemical cure-all of more Government spending.

What do the leaders of research propose?

Gaston du Bois came to St. Louis from Switzerland in 1903 to have a look at the World's Fair and to help John Queeny's infant Monsanto Chemical Company iron the kinks out of the process for manufacturing vanillin. In those days nobody in America knew much about the synthesis of coal-tar chemicals and Mr. Queeny was even buying important raw materials in Basle. When he got into difficulties over yields, his suppliers kindly shipped over a young chemist who promptly became so deeply engrossed in solving Monsanto's problems that he labored early and late, Sundays included, and only got to the Fair for two hours on the evening of the Fourth of July. He can remember when four shareholders pledged their own names at the bank to meet the pay roll. Now he is vice president in charge of development of the company which has 10,953 stockholders and 6,580 employees.

Science brings "health" and gold

GASTON du Bois is exceedingly modest, but he knows that this growth is rooted in research that has developed more than 300 new products and perfected and re-perfected process after process to make them cheaper and better. He speaks with honest authority when he says:

Several questionable characters lurk in the unemployment woodpile and, in one important respect, they all look alike. They all hold back the creation of new industries and new jobs by private industrial research which must be a major factor in any permanent solution to unemployment. It is when industrial progress flourishes that people come closest to their goal of prosperity and steady employment.

Monsanto, for example, has spent a fifth of all its profits for research in the past ten years. Over that period, employment in our plants has increased 40 per cent. Average weekly wages have increased 15 per cent, while the number of hours worked per week has decreased from 54 to 40. This has all been the result of new products and increased demand for old products used chiefly in the manufacture of goods in new fields.

Taxes have been a sizable drain on business during this period and, in 1937—a good business year—they almost exactly equalled, in the case of Monsanto, the amount available for research. Think of the progress Monsanto made with what research funds it had during this period. Then think what it, and other companies, might have been able to do toward creating jobs had they been allowed to plow even half of their tax money back into research.

Our big task today is to regain that confidence which will put research and invention to work to create new industries and new jobs. It is not a question "of finding jobs faster than invention can take them away." Without new things industry will stagnate and we will only sink deeper into the morass of permanent unemployment.

No thought in this that American industry is finished and that the frontier is closed. No theories of plow under or pleas for a handout.

But does the record substantiate this optimistic faith in the future?

How restrictions operate

The development of any chemical product is a long, tedious job and, during the development period, these new products do not produce one dollar in revenue. Funds to carry on research and development must come out of current earnings or from reserves. When earnings are jeopardized by meddling restrictions, unwise regulations, by burdensome taxation and rising costs, research and development usually suffer.

This in turn means that development work which creates new products and makes new jobs, a few years hence, slows down. Our industry and other industries cannot long continue to develop new products, new jobs and opportunities, unless we can face the future with the assurance that the necessary development work will not be endangered by high taxes and restricting regulations.

—E. M. Allen, president
The Mathieson Alkali Works, Inc.



A small corner of the research department of one major firm. Such departments, dependent on profits, have done much for our standard of living. Tax away profits and all of us suffer. Government cannot risk the 99 failures that accompany each success.

Behind our standard of living

In the United States we make more chemicals—measured either in tons or in dollars—than are produced in Germany, England, France, Italy, Japan, and Russia all added together. We have by far the world's greatest chemical output because we are incomparably the largest chemical user among the nations. The chemical consumption of the milltown of Pawtucket, R. I., has been soberly estimated to be greater than that of the whole continent of South America.

—Williams Haynes in *Men, Money and Molecules*



In World War days, white, perforce, became a "stylish" color in this country. We had no dye industry. Today, thanks to industry's support of research, the whole spectrum is available for use in any field that wants it

The growth of vision

The quiet growth of science has practically recolored our mentality, so that modes of thought, which in former times were exceptional, are now broadly spread through the educated world. . . . The new mentality is more important even than the new science and the new technology.

—Alfred North Whitehead

Of all industries certainly the chemical industry is the outstanding exponent of research. Our chemical companies—big and little—don't "go in" for research. They carry on research as naturally as they keep books. In the strictly chemical manufacturing field are some 3,000 concerns including the makers of such chemical specialties as polishes, solvents, insecticides, etc., for industrial, agricultural and household use, but omitting the makers of medicines and cosmetics as well as all who assemble and mix and package chemical products. Nine out of ten of these chemical makers are doing some sort of development work. Hardly a one but must engage the services of chemical or engineering experts. About 110 of them and 40 chemical trade associations think broadly enough of research to support fellowships in educational institutions.

Making a better tomorrow

ALL IN ALL, the chemical industry employs about 9,000 scientists and engineers for research projects and, each year, pays some \$50,000,000 for laboratory equipment, supplies and services. The chemical makers foot this bill for research in hard-headed appreciation that they are buying assurance of profits today and insurance for the very life of their enterprises tomorrow.

They like their investment, at least they jack up their research expenditures year after year, and they can produce figures to support this budget item: In 1929 chemical production was \$1,000,000,000; in 1940, more than \$2,000,000,000.

Since World War I, the chemical industry has taken on a big new job—that of supplying synthetic raw materials for all the other industries. It started, this making of synthetics, back in 1856 when an English schoolboy spent his Easter vacation trying to duplicate quinine. He realized that the resulting purple powder might be used as a dye and his father had the courage and means to back him. They showed the way to the great coal-tar dye industry.

Out of fertile coal tar came not only colors, but perfumes, flavors and, later, medicines—the widely used aspirin; arsphenamin, the specific for syphilis; and a host of others. Later were developed the favorite explosives of the last war, picric acid and TNT.

By 1914 Germany had a practical world monopoly on this coal-tar chemical business, a stranglehold that she maintained through her dominance in dyes and medicinals. It was not big business, either in dollars or in pounds, but it was key business. We learned with dismay, when the supply was cut off, that, without a completely rounded chemical industry, we could not be prosperous, healthy, or safe.

Not only were these coal-tar products vital in industry, in medicine, and for defense, but the technique was essential.

Even before 1914, our total chemical production had been substantially greater than that of either England or Germany, but most of this output had been of the so-called "heavy chemicals," chiefly inorganic acids and alkalies. Since the First World War, our growing use of chemical substitutes for natural raw materials has expanded our chemical consumption enormously. Today our national

chemical output is greater than the combined productions of England, Germany, Japan, Italy and Russia.

The use of chemical raw materials first grew out of our salvage of surplus war materials. The Government had on hand nearly 40,000,000 pounds of phenol, about ten years' normal supply. To everyone's astonishment, this vanished in three years because of the growth of phenol-formaldehyde (*Bakelite-type*) plastics. Radio had become popular and this type of resin is admirably suited to electrical work. Piles of nitrated cotton and tanksful of butyl alcohol disappeared in cellulose lacquers, a new business made possible because a suitable cheap solvent was available.

The chemical industry was fairly launched on its new job of supplying such chemically made materials. This market opened up slowly. It accelerated rapidly. In 1920 we produced some 5,000,000 pounds of synthetic plastics and resins; in 1930, less than 50,000,000 pounds; in 1940, more than 200,000,000 pounds. It took our rayon industry 18 years (1910-28) to reach an output of 1,000,000 pounds. This doubled in the next five years (1933). In 1940, it is estimated, the production was more than 500,000,000 pounds. Synthetic rubbers are beginning to indicate the same tendencies.

The new competition

WHEN a new synthetic material appears, it frequently comes into competition with some existing material. The two may be chemical twins: indigotin and vanillin are chemically identical with the active coloring and flavoring principles of the indigo plant and the vanilla bean. The new material may be an acceptable substitute, as Fabrikoid for leather in automobile upholstery or Thiokol for rubber in a gasoline hose, or it may be some unique chemical compound, quite unknown in Nature, as Bakelite, or nylon, or even glass which, after all, is only an ancient chemical substitute.

Any newcomer in the market must offer some definite advantage. Usually the new material is cheaper, though sometimes a higher quality or a much needed characteristic offsets a higher price. When Charles Pfizer & Company first made citric acid synthetically by the fermentation process in 1919 for the American market, the natural acid made from cull lemons and oranges cost \$1.10 a pound. Within a year the price was down to 40 cents a pound, ten cents a pound lower than before the war inflation. On the other hand, neoprene, introduced in 1931 at \$1.00—three times the price of natural rubber—found a market because of its superior resistance to oils, gasoline and various chemicals.

As the output of neoprene increased, costs were reduced so that, three years later, the du Pont Company was selling it at 75 cents. Today the price is 65 cents. This constant lowering of price is characteristic of the chemically made products and is one of their strong points. In 1920, 37,500 gallons of isopropyl alcohol, a useful new solvent made out of petroleum, were sold at \$2.00 a gallon; in 1939, 27,300,000 gallons were sold at 31 cents.

Besides a price that constantly tends to lower, the synthetic ma-

Political astigmatism

An alarming number of well intentioned people honestly believe that the rapid way to economic and social salvation lies in the direction of science holidays, wherein the researcher will leave his job for a certain indefinite period to allow the sociologist and politician to catch up with the procession. Just how long does it take a politician to catch up? . . . These people never contemplate the fact that more experiments and not less are required to find a cure or cures for cancer. The idea that newly discovered processes might mean cheaper textiles and hence a warmer and more comfortable populace never entered their well covered heads.

—C. C. Furnas in "The Next Hundred Years"



EWING GALLOWAY

Natural products, such as the camphor this boy is working on, vary in quality and supply. Moreover, the source is frequently distant or inaccessible. Synthetics, lacking all these faults mean certain supply and stabilized prices

Many kinds of progress

From the viewpoint of labor, the chemical industry has led the field in relative improvement in employment and pay rolls, has made a better than average showing in wages, and has thus contributed handsomely to relative economic progress.

—D. P. Morgan, Scudder, Stevens & Clarke, N. Y.

"Research for politics"

The pattern for much of the work ahead of us has already been worked out. We have demonstrated that, if necessary, we need not be dependent on any foreign source for nitrogen, potash and iodine. More recently, rubber has been added to this list as du Pont, Goodrich, Standard Oil, Dow and others reveal the results of their latest researches. New sources of toluol for TNT and glycerine for dynamite are awaiting full scale development. Lacquer and resin finishes, paper and plastic containers can conserve or replace our tin supply. So on down the list of strategic and critical materials that one after another have yielded to American research.

President Collier of Goodrich, in his announcement of the first commercial automobile tire to be made from all American raw materials, expressed his confidence that "the American public can be relied upon to demonstrate this truth—that free men, cooperating voluntarily, can solve our nation's problems." There is the answer to any threat of foreign supremacy in science, technology or industry. Let's get behind a program to substitute "research for politics."

—S. D. Kirkpatrick, in
Chemical and Metallurgical Engineering



The chair is a plastic material. So is the wall. It might, however, have been any of a dozen new materials—steel, aluminum, glass, pressed wood, or plywood, to name a few—which are giving the construction industry a new versatility in erecting new buildings or remodelling old ones

materials are characterized by a quality that is never varying and continually improving. Natural and synthetic vanillin are chemically identical and their story tells dramatically why the chemically made materials are winning on so many fronts.

End of a monopoly

NATURAL vanilla is extracted from the beans of a vine that reaches maturity in three years and, after eight years, ceases to yield a profitable crop. Each season the vines must be cultivated and trimmed back, and young plants must be continually brought along to replace the outworn stock. Vanilla is native to Mexico which still produces the most favored beans but its cultivation has spread to many parts of the semi-tropics. The largest commercial center is the Island of Madagascar.

Prices fluctuated widely. In the 19 years before 1918, quotations of the Mexican beans in New York ranged from \$2.50 (1914) to \$11 (1900) with an average close to \$4. The Bourbon (Madagascar) grade was quoted at a low of \$1 (1905-06) and a high of \$4.75 (1901) with the average price about \$2.25. Synthetic vanilla appeared in 1876 at \$80 a pound. This price was successively reduced until, in 1924, it sold at \$8.

Just at this time, 1924, a revolution in Mexico and bad weather in other growing centers gave Madagascar planters a corner on supplies. They ran their price from \$2.65 to \$9. Their perfectly human selfishness had two logical results: planting of vines was stimulated in all growing centers and substitution of vanillin for vanilla was promoted in all consuming fields.

By 1927, the world crop of vanilla had nearly doubled. By 1932, the price had sunk to 50 cents, which hardly paid to pick and cure the beans. Plantations were neglected. As a result, in 1934, another acute shortage arose.

But in the meanwhile, increased consumption of vanillin had enabled American manufacturers to reduce their price from \$8 to \$3. So, in the 1934 famine, price of Bourbon beans rose, not to \$9, but to \$3.50. Control of fluctuations in the price of natural vanilla had plainly become a function of the price of synthetic vanillin and it is notable that, despite these fluctuations, the synthetic price has steadily declined. The end is not yet because, in 1937, the introduction of vanillin from woodpulp waste by a process perfected by the Marathon Paper Company brought the price down to \$2.

Quite as important as price stability is the uniform quality of the synthetics. Variation is the universal law of Nature and, taking vanilla again as an example, the extract made from beans must always be scrupulously standardized. Its preparation depends upon the human senses of taste and smell and compounding two batches to equalize the constant variations in beans is an art. On the other hand, the quantity and quality of the flavoring in a pound of synthetic vanillin is invariably the same.

Natural raw materials often fail at critical points or lack some needed property. The natural varnish gums are a notable example. A score of them are available, with various melting points, different

colors, and distinct degrees of hardness. The range of all these characteristics has been infinitely extended and the number of desirable combinations indefinitely multiplied by the use of the synthetic resins. Today, it is possible to make to order a resin to fit the most exacting requirements of use.

Finally, new materials always throw open wide the door of opportunity for the development of new industries and new goods. It has ever been thus. The basic principles of the mechanical operations are comparatively few and they have long been well known. Archimedes was familiar with the wheel, the pulley, the lever, the cog. The handicraft operations of whittling wood, chipping stone, pounding metals, are still the fundamental ways of modifying these natural materials for human use. The great thrusts forward of material progress have always followed the discovery of new materials.

These modern synthetic materials are naturally suited to the assembly line since they are invariably uniform in physical and chemical properties. If necessary, these properties may be changed or modified to meet definite specifications.

Why grandpa's carriage cost so much

GRANDFATHER'S carriage was a custom-built job. Its beautiful bottle green varnish was built up, coat upon coat, each carefully brushed on, baked for two or three days, rubbed down from roof to spokes with oil and pumice, and the whole laborious process repeated four or five times. It took six weeks.

Six weeks' painting job at the end of the automobile assembly line might as well be six centuries. It would turn the vision of cheaper cars achieved through mass output into a nightmare. Lacquers, as we all know now, were the answer; and the cellulose lacquers of ten years ago have been more and more replaced by the synthetic resin lacquers of today.

Resin lacquers leave a thin film of plastic coating and, recently, the development of new types of synthetic resins—combinations of the alkyd and the urea-formaldehyde resins or the still newer melamine-formaldehyde resins—have set up new standards of hardness and color-retention. The drying-time of these recent finishes has been cut down to ten minutes on furniture and to about an hour on automobiles. From six weeks to a day, and now to an hour—here are time intervals that fit into the schedule of mass production.

Progress in these synthetic coatings rushes forward with a speed that bewilders even the manufacturers who use them. Only last spring an industrial scout from one of the big refrigerator companies dropped in on his friend, the director of development work for one of the large lacquer companies, and was shown a "swatch" of a new metal coating. It was a sheet of iron, eight inches by four, painted on one side with a rich white finish as thick and smooth and soft-feeling as porcelain tile.

Said the research man, "Just bend that metal strip double."

He did so, flexing it over the edge of the desk and forcing it between his knees into a sharp, narrow "U." Over the sharp curves the finish was still smooth and firm.



Only a few years ago today's streamlined trains would have been impossible. New, lighter, stronger materials, new refrigerants, new decorative agents, all were needed. The laboratories supplied them.

Toward the simple life

We are told that, when Washington, Jefferson and company originally assigned tasks to governmental and business leaders, we had in this country a "simple economy" and that now we have a "complex economy," though I have never been able to see why one is complex and the other is simple. When my grandmother had to build a fire out of buffalo chips and make a pot of soup out of nothing, that wasn't so simple. My daughter can turn on the gas, open up a tin can and there is the soup. I would like to know which is the complex and which is the simple.

—B. E. Heacock, President, Caterpillar Tractor Co.

Frontiers still beckon

A people who can make rubber out of coal and limestone and salt, who can make wood out of cornstalks, and a thousand commodities of use and beauty out of soya beans—such a people still have frontiers to conquer. And they are being conquered by the courageous who, despite every discouragement by Government and Termites, go out in the laboratory, mill, factory and the farms, conquering the secrets of nature and overcoming the resistance of molecules and atoms and all those little things that make a diamond different from a chunk of coal.

—George E. Sokolsky



The plastic airplane shown here is a far cry from those of 20 years ago when spruce, Irish linen and "dope" with a banana oil base were regarded as the best ingredients. Without the chemist, today's records of aviation performance and safety would be impossible

Politics isn't engineering

There were several years, I should say roughly from the crash of 1929 to the end of 1933, from the breakdown of prosperity to the beginning of recovery, when the ideal of an engineered and planned economy had almost completely captured the imagination of the Western World. Every one who raised his voice talked about planning something. No doubt they had different ideas of how to plan and what to plan for, but the underlying image dominated most minds.

The point I wish to make is that the conception of government as a problem in engineering is a false and misleading conception, that the image of the engineer is not a true image of a statesman, and that society cannot be planned and engineered as if it were a building, a machine, or a ship. The reason why the engineering image is a bad image in politics, a bad working model for political thought, a bad pattern to have in mind when dealing with political issues, is a very simple one. The engineer deals with inanimate materials. The statesman deals with the behavior of persons.

—Walter Lippmann in "The Good Society"

"Do you remember, Bill, that three years ago there was no finish on earth that would have stood up under an extreme bending like that? But now bend it back straight, then way over until the coating's inside out and then straighten it again."

The inquiring visitor did so, and still not a flaw appeared in the coating.

"It's about ten months since we perfected a finish that would stand that much mistreatment. Unless you are looking for a lot of good, hard exercise, you'll be willing to take my word for it that you can bend that sample back and forth until the metal breaks; and, until that happens, the coating will stand up. It's only six weeks since we have had a metal coating of that fine enamel texture able to take that kind of punishment."

It is no joke that the coatings on the outside and on the inside of an up-to-date refrigerator are as different as cheese and chalk; and it is a matter of serious concern that these improved finishing materials are of growing importance to our Navy and our mechanized Army. Protective coatings for airplanes, for example, must adhere closely to the surface at 350 to 400 miles an hour. That speed strips off ordinary finishes.

In the plane factory, high speed methods of application require almost instantaneous drying of the finish, which, in addition, must provide the utmost in durability. Defective finishes not only increase wear and tear on exposed plane parts, they also cut down speed—as much as ten per cent in extreme cases on wings, and 35 miles an hour is beyond the margin of safety wanted in military aviation.

A coating for every job

THESE modern coatings, especially adapted for special uses, be it the baby's rattle or the battleship's turret, are so highly and skillfully formulated that any user of a coating for any purpose can have literally scores of different types of synthetic resins, dissolved in more than 100 different solvents and plasticizers, a combination tailor-made to his needs.

Not only are these modern protective and decorative coatings most admirably suited to modern production, but the synthetic resins are also freeing us from dependence upon imported gums and oils. Once the so-called varnish gums all came from afar—Australia, the Philippines, Africa, and India are the chief sources. The hardest of them are fossilized vegetable material which it takes Nature centuries to produce. Stocks of the best gums are, therefore, definitely limited. Even the gums which may be collected annually are in uncertain, fluctuating supply and, with the rapid increase in our use of finishes, prices would have zoomed except for the synthetic resins.

For the third time since 1925, our importations of tung oil from China have been seriously disturbed and prices have soared. This is evidently going to be the last time this is to happen. American manufacturers are seeking substitutes for this desirable, but unreliable, ingredient. Research is teaching how to improve the qualities of softer oils, notably of American soya bean oil.

Until a few months ago, if you were seeking the toughest, longest wearing, easiest-to-clean seat covering available, you would select one woven of long, thin strips of rattan. These cane seats were first choice for bus and train. But cane has some peculiar drawbacks, particularly from the customer's point of view. As a seat it is only a little softer than granite. It is cold and slippery. In time it will crack, leaving fine splinters which snag passengers' wearing apparel, especially women's stockings.

Hundreds of small damage claims against the transportation companies have been the result. Moreover, the cane seats, being porous, absorb dirt and resist cleaning.

Even the makers were not pleased

FINALLY, and this does not appear on the surface, the manufacturers of cane seats had their own complaints against natural rattan. It is an imported material prey to delays, variable quality and widely fluctuating prices. It must always be sorted for width, thickness and length while the shortness of the strand does not lend the material to fast, big-scale weaving. Plainly here is a best-available natural material that can scarcely be considered ideal.

Research by four different American companies set to work to eliminate the faults in cane seating. It took three years to solve all the problems but now the New York City Board of Transportation is introducing a new kind of synthetic, wholly American-made, from American materials, seat covers.

The basic material is a comparatively new type of plastic known in the laboratory as vinylidene chloride and trade-named "Saran" by the Dow Chemical Company. Saran is exceedingly flexible yet tremendously tough. In the Dow laboratories a strip of Saran has been flexed 250,000 times without breaking and strands have a tensile strength of 100,000 pounds to the square inch, far exceeding that of steel.

Non-porous and water resistant, it can be quickly and easily cleaned with soap and water. But it also resists perspiration, brine, alkalies, most solvents, and many strong acids. Furthermore, Saran will not burn and, finally, it comes in all colors from crystal clear and milk white to brilliant scarlet and jet black.

How to extrude Saran in long, rattan-like strips was a fabrication problem worked out by the Irvington Varnish and Insulator Company. It involved a new design of extrusion machine and needed a lot of careful experimenting with pressures, temperatures, speed of extrusion, and such technicalities.

To weave Saran into seat covers was simpler, yet even this step was not taken without some adaptations of established methods; and the Heywood-Wakefield Company, fabricators of seat units, made a positive contribution of their own to this development in a process for preforming the corners after weaving.

Being highly flexible, this new material offered an opportunity to temper the discomfort of the old rattan seats. Here the fourth collaborator in this achievement, the Firestone Rubber & Latex Company, made its own contribution. A pioneer in the development

Patents benefit public

Research directed to the development of a new product frequently involves a long period of time and a considerable research expenditure. Such an expenditure is justified only if there is assurance that, through marketing the product, a fair return on the research investment may be realized. Such assurance is to be had only through a patent, which guarantees to the inventor exclusive right to the manufacture of the product for 17 years. Our American patent system thus offers a reward to the inventor, and to those who back him, and, in return, the public benefits from the many new and useful products developed under this protection. Finally, upon the expiration of the patent, anyone may freely use the invention and enjoy its benefit indefinitely. The present patent system has encouraged invention and made it possible for the inventor safely to disclose his idea to those who are in a position to help him to develop it. Were it not for this protection, the stimulus to the inventor which now exists would be lessened considerably. The great difficulties which would face the inventor in maintaining the secrecy of his invention, and in trying to keep others from profiting at his expense during the development of his idea would tend to discourage invention and thus deprive the public of countless necessities and luxuries which it now enjoys because of the incentives created by the patent system.

—Dr. Ernest B. Bengel, Assistant Chemical Director, du Pont Co.



Four different firms contributed skill and money to the effort to make a more lasting, more comfortable, less troublesome material for bus and car seats. They believe they have found it. If so, the trade-in value of used automobiles may be increased. Upholstery, at least, will be good as new.

How Government promotes research

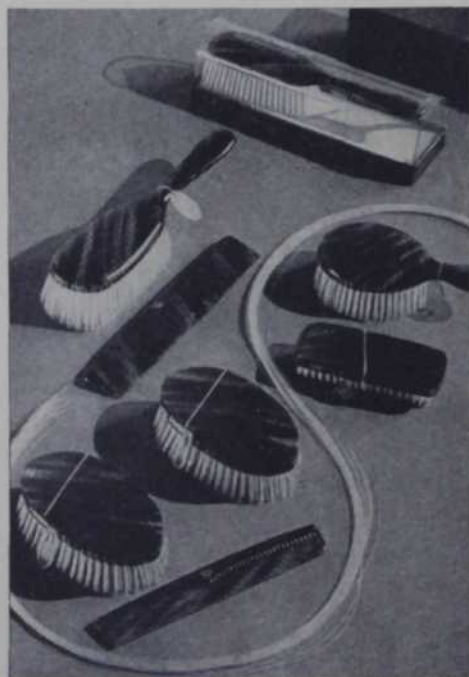
An American inventor had come to Paris and had offered the French Admiralty two new inventions: one of them a ship to be propelled by steam power instead of by the wind; the other, a submarine boat which was to sink ships by the discharge of a kind of torpedo. "The man is a charlatan," was Napoleon's comment on Fulton, after an experiment in which the inventor's "plunging boat" had had a partial success; and he brushed the whole matter aside. If the American had brought him models of a machine gun and field telegraph, he would have opened his purse.

—Emil Ludwig, "Napoleon"

Give the people a chance

Our rulers will best promote the improvement of the nation by strictly confining themselves to their own legitimate duties, by leaving capital to find its most lucrative course, commodities their fair price, industry and intelligence their natural reward, idleness and folly their natural punishment, by maintaining peace, by defending property and by observing strict economy in every department of the state. Let the Government do this—the people will assuredly do the rest.

—Thomas Babington Macaulay



DANA B. MERRILL

Combs, brush tops, bristles, carton, even the threads that wind among them, are all colorful new products which mean more things for more people

of latex sponge cushions—they are used to reduce vibration in machinery and as stuffing for mattresses and automobile seats—this company applied their Airtex to making more comfortable seats.

This story of cooperative development in finding new uses for a new material by no means ends here. Saran is sure to appear in other industrial rôles. In fact, it has already done so. This versatile new plastic may be molded by heat and pressure as well as extruded in strips and threads. It is used as a plastic bonding in a new type of abrasive wheel recently put on the market by the Norton Company, and its high resistance to all sorts of chemicals is inspiring experiments toward adapting it to use in chemical equipment.

Path to more gracious living

PICKED from among hundreds of synthetic plastics because it has only been commercially introduced in 1940, Saran is a pretty example of how these versatile new synthetic materials are making possible all sorts of better and cheaper goods. It requires no Sherlock Holmes powers of deduction to guess that Saran automobile seats—especially in convertible models—garden tables, and deck chairs, to say nothing of porch draperies and out-of-doors mats, are all in the offing, and, woven into fabrics, this tough, flexible, naturally fireproof material holds some intriguing possibilities.

Like the lacquers, the newer fabrics are fast becoming compounded products. In fact, a coating formula may be likened to a mince pie recipe, and the combination of different natural and synthetic fibers in both knit and woven goods to the rules for making an English plum pudding.

This compound weaving of fabrics is revolutionizing whole sectors of the textile industry. To consider how their impact might be turned to an impulse to forward their textile interests, the New Materials Committee of the New England Council of which President Karl Compton of M. I. T. is chairman, called together a group of mill owners and operators, dyers, chemists, and rayon experts. When the discussion got 'round to synthetic wool, a sample of the new material now being experimentally produced from casein right in New England, was passed about. When it reached the chief chemist of one of the great worsted companies, he tossed it a little contemptuously into the center of the great round table—yes, he knew all about this so-called wool.

"But, gentlemen," he added, "believe me, it is not wool. It does not feel like wool or look like wool. It does not dye like wool, or spin like wool, or weave like wool, or drape like wool. It will never be anything but a cheap and nasty substitute."

Another member of the conference spoke up. He is an official of the company that makes Palm Beach cloth and there was a mischievous twinkle in his eyes as he said:

I hesitate to disagree with so distinguished an authority, and I must admit at once that this new material is not wool and that its properties are not completely wool-like. Nevertheless, gentlemen, I must point out to you that it is not cheap; it is not nasty; and it is not a substitute. It is a brand new textile fiber!

My company is manufacturing a lightweight summer suiting which is partly cotton but mostly synthetic fiber—several different synthetic fibers. In fact, it would be impossible without those synthetics. It is spun and woven in new ways devised after several years of thorough-going research. The public have been generous enough to tell us that it makes a superior summer suit; that it is cooler, cleans better, holds its shape better, looks better, and wears longer.

We are making that synthetic summer suiting into two piece suits and selling them at retail for \$14. Through continued research we have been able several times greatly to improve the material and to reduce the price. I will confess to you, if you will believe me, that this is neither a threat nor a promise, that we are working on heavy-weight winter suitings that we can sell in three piece suits at prices comparable to our summer garments. When we succeed, that material will be woven of a combination of several natural and synthetic fibers—mostly synthetic, because they have unique, valuable characteristics that, regardless of cost, enable us to get fabrics that are new and more useful.

What the American textile industry needs to do is to welcome these new synthetic fibers and use them for all they are worth, and then to pray night and morning that the tailors will be as clever as the dressmakers, so that a man will be ashamed to wear a \$10 suit for five years!

That is the chemical—not the alchemical—theory of the abundant life! For the consumer, a \$10 suit that will wear longer, look as well, clean and press better, be more comfortable, summer or winter, because it is made of a material that has been deliberately fabricated out of new, low cost, versatile, specialized man-made fibers. For the textile industries that means more spinning and weaving, more dyeing, more suits to cut, more suits to sell, greater volume at lower prices, but with quicker turnover, all along the line.

The women get the benefit

LOOK at the array of good-looking, fashionably styled, low-priced women's dresses in any department store window. Most of them are various types and new weaves of rayons. Think back what women's clothes cost ten, 20 or 30 years ago, and you will be convinced that rayon has made Mrs. O'Grady and the Colonel's Lady sisters over, as well as under, the skin.

Better yet, if you want to be completely astonished, talk with some competent, up-to-date textile consulting chemist. He will tell you of new velvets that are absolutely crush-proof and of plush that is truly water repellent, of canvas that is so heavy and tough that it makes the anti-blowout tire a reality and so light and tightly woven that it makes a wind-proof, cold-repellent jacket whose buttons weigh more than the cloth. There are fabrics for bathing suits woven with rubber threads and for ball gowns of gold and silver threads. Synthetic fibers are on the market as coarse as binder twine; others are half again as fine as the spider's web; fibers that are fireproof and waterproof; fibers that resist anything from a soft boiled egg to fuming nitric acid.

Swiftly nowadays personal experience is driving home to us that these chemically made synthetics are not cheap, nasty substitutes, but new, useful materials, almost always cheaper and often better



H. ARMSTRONG ROBERTS

The fact that chemistry can now supply fabrics with almost any desired combination of qualities has been reflected in the sports attire of the nation. Science also stands ready to protect this young woman's complexion against the weather

Now we know the reason

Chemistry is a young science but an ancient art. Long ages before man had the faintest notion of chemical laws or formulas, he had stumbled upon thousands of ways of putting chemicals to work, helping him to save time and much hard labor, improving his materials and sometimes even creating new materials. It is only within the past 150 years that we have acquired any exact chemical knowledge of how leather is tanned, or why linen can be bleached, or what happens when sand is fused into glass, or wherefore fertilizers increase the harvest. Yet these are all very old chemical arts, discovered by a long series of happy accidents, tested by trial and error, applied by rule of thumb.

—Williams Haynes in *Men, Money and Molecules*

A plan for research

And there is open to us, also, a noble pursuit, to which the spirit of the time strongly invites us. Our proper business is improvement. Let our age be the age of improvements... Let us develop the resources of our land, build up its institutions, promote all its great interests, and see whether we, also, in our day and generation may not perform something worthy to be remembered.

—Daniel Webster, 1825



RESMITH

When the most luxurious finery depended on the vagaries of worms like these and a long ocean voyage, only the wealthy could afford it. Chemistry has given today's working girl fabrics that potentates once would have envied

For the national defense

The War Department has estimated that, in the event of a major conflict, the United States would require for munitions purposes 144,000 tons of nitrogen a year. This is equivalent to 900,000 tons of Chile salt-peter, or 150 cargoes carried in the ordinary freighter of 6,000 tons capacity. During the World War the fear of insufficient supplies of nitrogen was so great that Congress appropriated \$80,000,000 of public funds to build the much publicized Muscle Shoals nitrogen plants, which incidentally could have turned out but a fraction of the nitrogen needed for munitions. Today the Belle, W. Va., works of the Du Pont Company alone has capacity sufficient to supply the entire requirements of the War Department in time of emergency. Another huge plant, that of the Allied Chemical & Dye Corporation at Hopewell, Va., manufactures synthetic nitrate of soda and ammonia, thus affording double security for nitrogen supply in case of need.

—Charles M. A. Stine,
Director of Research, du Pont Co.

than their natural rivals. They are so thoroughly competitive that they control the price of natural materials from all over the world and even break the grip of tightly held natural monopolies. As vanillin governs the ups and downs of vanilla bean prices, so synthetic camphor now prevents the old, skillful, profitable exploitation of the market for natural camphor gum by the Japanese.

Industry from air and water

THE CHEMICAL philosophy demands that always the cheapest, most abundant, raw material must be sought out. The wisecrack of the smart chemical engineer who said that the more air and water any chemical process consumes, the more efficient it is, has become an established tenet of his profession. Air and water are the industrial source of ton upon ton of nitrogen, hydrogen, and oxygen.

Air and water with coal are the basic raw materials from which du Pont produces nylon. That is why technical experts have hailed this new material as the greatest practical chemical development since Haber 30 years ago discovered how to extract the nitrogen from the air in the form of ammonia. For the first time we have a filament made entirely out of inorganic materials—no cellulose from either cotton or wood—simple coal, air and water, domestic, cheap and abundant raw materials. While their transformation into the long-chain molecules of nylon is complex and costly, the possibilities of unlimited output and of considerable cost cutting, as volume grows and experience accumulates, are indeed alluring.

It was just a year ago that du Pont shipped the first nylon yarn to hosiery mills. On May 15, the first nylon stockings went on sale and, by October, some 17,000,000 pairs from mills in 27 states had been sold. The \$12,000,000 plant at Seaford, Del., is being doubled in capacity and another to cost \$11,000,000 will be built at Martinsville, Va. The first price reduction has already been announced, as of October 28.

A research, initiated in 1928 as a purely scientific study of the long chain molecules, strung together like a chain of paper clips by obscure reactions which the chemists call polymerization, has given us a new \$20,000,000 industry which, it is estimated, already has given work to more than 1,300 men and women.

Behind du Pont's synthetic rubber, neoprene, is a similar story, a new material of unique properties made out of cheap, abundant, native, inorganic raw materials—in this case, coal, limestone, and salt. Because it stretches and snaps back and because it bounces, rubber is without a rival among natural raw materials for purposes where elasticity or resiliency are needed. We use some 600,000 tons a year, about three-quarters of it for automobile tires and tubes, the remainder scattered among 30,000 other uses ranging from golf balls and galoshes to machinery belting and surgical sheeting. Rubber has become a necessity.

Yet, for all its useful properties, rubber is not an ideal industrial material. Technically it has a couple of bad faults: It loses its elasticity and resiliency due to oxidation from the air and it either swells and softens or completely dissolves in a number of

common liquids such as lubricating oil, gasoline, benzene, and many chemicals.

Commercially it has won the unenviable reputation of setting up an all-time high record for price variation—over 50 fold—and our chief source of supply is in the Far East, some 12,000 miles away. A big, steady supply is vital to a mechanized army. Rubber, aluminum for lightweight alloys, and tin are the top items on the Defense Commission's list of must materials.

History is but repeating itself, because the technical and commercial shortcomings of rubber have given throbbing aches to many an industrial and military head since long before the World War. Germany had foreseen her rubber necessities before 1914, and, back in the Gay Nineties, chemists went delving into the secrets of the composition of gutta percha. They found that the parent substance of the natural gum is isoprene, and a close chemical kin was the so-called methyl rubber which Germany used as a substitute in the World War. Yearly output reached 4,000,000 pounds but it was a pretty poor substitute. So poor, in fact, that the tenacious and resourceful rubber researcher, Fritz Hofmann, gave it up as a bad job and, in 1918, turned to more promising fields.

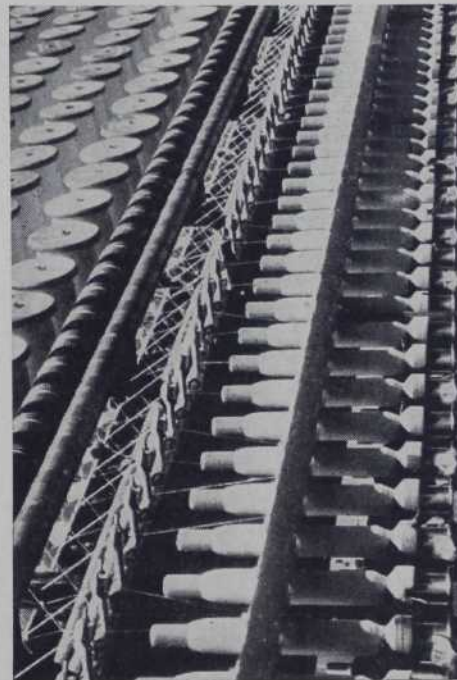
All the early efforts aimed to make a true synthetic rubber, to duplicate rubber itself in the chemical plant more cheaply than it could be produced on the plantation. The rubber problem still haunted us, and there was plenty of incentive, financial and patriotic, to prompt further research. About 15 years ago, work started with a new objective. The peculiar structure of the rubber molecule had been explored and, with this better understanding, the chemists set out to build up big, long-chain aggregations of atoms similar in structure to rubber, but not rubber—something with better properties than rubber.

Rubber that isn't rubber

THE DU PONT'S won the first victory with neoprene. In Germany, the Bunas were developed. Last June the Standard Oil Company (N. J.) announced the fruition of several years search in their Esso laboratories in a butyl rubber, a radical departure chemically from other synthetic rubbers and produced from petroleum by more direct and simple process than are the Bunas.

None of these rubber substitutes is in any chemical sense a synthetic rubber, but they act much like rubber and can be vulcanized and worked and compounded like rubber and in combination with rubber. All of them possess certain distinct characteristics and, while these vary from type to type, all are more resistant than the natural product to sunlight, air, heat, and chemical action.

Commercially all have followed a similar pattern. After experimental production in a semi-works plant, the initial industrial supply has gone into special uses where the properties in which they surpass natural rubber are at a premium. High price and limited supply have kept them out of automobile-tires, except experimentally, but several of them show definite promise.



A modern "silk worm." Immune to disease, easily controlled, it turns out big filaments, or little as required. Moreover, its product is low in price and completely emancipated from world changes or international disputes

Science's contribution toward peace

The real service of the chemist lies in the fact that he is freeing or rendering us more and more independent of any specific raw material to supply any specific want. One of the great sources of difficulty between nations in the past has been the urge of some one nation to possess land because that land contained a specific raw material, and that specific raw material was absolutely necessary to supply some need of the world. The farther the chemist progresses in his work the more fully will this source of friction be removed.

—Dr. John E. Teeple

A word from Washington

There is nothing which can better deserve your patronage than the promotion of science.

—George Washington



Not a man from Mars, merely a workman wearing a suit of man-made "rubber" in an acid plant. A half dozen such "rubbers," better in many respects than the natural product, guard us against a shortage if foreign supplies are cut off, stabilize prices even when they are not

Works vs. words

We have sometimes thought that an amusing fiction might be written, in which a disciple of Epictetus and a disciple of Bacon should be introduced as fellow travelers. They come to a village where the smallpox has just begun to rage. . . . The Stoic assures the dismayed population that there is nothing bad in the smallpox. . . . The Baconian takes out a lancet and begins to vaccinate. . . . It would be easy to multiply illustrations of the difference between the philosophy of thorns and the philosophy of fruit, the philosophy of words and the philosophy of works.

—Thomas Babington Macaulay

Insuring the future

The best insurance policy for the future of an industry is research, which will help it to foresee future lines of development, to solve its immediate problems, and to improve and cheapen its products.

—Sir Harold Hartley

Neoprene has been available for nine years and demand for it has increased so fast that frequently du Pont has been forced to start construction of a new manufacturing unit before the one previously started was finished. By next autumn their capacity will be 12,000,000 pounds a year, which alone is three times the country's total synthetic rubber output in 1939.

By an exchange of patent rights, the Standard Oil Development Company has acquired American rights from the *I. G. Farbenindustrie* on the various Bunas. Accordingly, no royalties will be paid to Germany by Firestone Tire and Rubber Company or the Standard Oil (La.) which have taken out a license to manufacture Perbunan. The latter company has announced that its new plant at Baton Rouge will be in production with five tons daily this month and the Firestone plant at Akron is nearing completion. In the meanwhile, in the past year, the American Cyanamid Company brought the first large-scale output of acrylonitrile in the United States into industrial production, assuring an independent supply of the co-ingredient with butadiene in Perbunan. Standard Oil (N. J.) is operating a pilot plant on butyl rubber and, at the behest of the Defense Commission, this material is being tested in tires. No plans have been announced for a butyl rubber plant, but many experts believe that, if this product is satisfactory, it offers the best chance of low cost rubber from petroleum. Obviously, oil sources mean higher raw material costs than coal and limestone. Still another competitor is in the field. The Goodrich Rubber Company, by independent research, has developed still another rubber synthetic from butadiene and other materials not disclosed. They have christened it Ameripol, and, beginning this month they, too, promise commercial production of five tons daily.

Freedom from foreign pressure

EVEN ON a large scale, production of any of these rubber materials will doubtless cost more than it costs to deliver plantation rubber to our shores. This cost has been estimated at between seven and eight cents a pound. But the market price of raw rubber averages substantially above these figures. If the superiorities of the substitute rubbers in tires equal their experimental promises, they will naturally be worth a premium. At all events, it is worth a good deal to be independent of foreign sources and plainly research has given us this comfortable assurance in the case of rubber.

The excursion of several large petroleum companies into synthetic rubbers is but another outward and visible sign of the chemicalization of the oil industry. This trend became almost obligatory since the production of high octane motor fuel is no longer a simple distillation of gasoline out of crude oil, but a complex chemical manufacturing job. Only ten years ago, iso-octane, which is the arbitrary 100 in the anti-knock scale for rating motor fuels, was a laboratory reagent selling for \$30 a gallon. Today it sells for 30 cents. The production of 100-octane aviation gasoline has skyrocketed: In 1937, it was 7,000,000 gallons; in 1938, 20,000,000 gallons; in 1940, probably more than 140,000,000 gallons. Al-

ready our normal aviation demand for these superfuels is nearly supplied (exports to England have moved up sharply this past year). Eventually they will be available for our motor cars.

That will mean 25 per cent increase in power and 15 per cent decrease in fuel consumption. For the average motorist this has been translated by Dr. Graham Edgar of General Motors as an average increased economy of 45 per cent at speeds between ten and 60 miles an hour.

No danger of shortage

BUT CAN we supply sufficient quantities of these super-fuels to fill the tanks of all our buses, trucks and family cars? This presupposes also the raising of the compression ratio from the standard 5.25 to 8.0 in the average motor engine. However, even if all cars had these high compression engines, we would still produce enough high-test fuel. Dr. Gustav Egloff is authority for the statement that:

The volumes of 100 octane gasoline potentially available yearly in the United States are greater than the volume of all gasolines now being produced. One prolific source which has been tapped recently is natural and refinery gases. From these gases alone 8,345,000,000 gallons of 81 octane, or 3,275,000,000 gallons of 92 octane, unleaded, gasolines are available. About 6,000,000,000 gallons of 100 octane aviation gasoline are available yearly when the 92 octane is blended with isopentane and neohexan and light ends from some crudes plus tetraethyl lead. This volume of aviation gasoline does not take into consideration the vast volumes of aviation stock which are potentially available from catalytic reforming and cracking. . . .

Benzene, toluene and xylenes are most important for motor fuel use and as basic material for high explosives such as picric acid, TNT and trinitroxylenes. The oil industry can produce any conceivable amount of these hydrocarbons from catalytic cyclization or aromatization of gasoline, the cracking process, and dehydrogenation of ethane. In 1940, about 26,000,000,000 gallons of gasoline will be produced in the United States. If the demand were present, our gasoline output could be increased to more than 40,000,000,000 gallons in a short time. Based on this year's gasoline production alone, and using but 20 per cent of the gasoline, the U. S. A. could manufacture (naturally requiring some time to go into full production) about 33,000,000,000 pounds of picric acid, about 27,000,000,000 pounds of TNT, and 25,000,000,000 pounds of trinitroxylenes. The 85,000,000,000 pounds of high explosives which are potentially available from gasoline are all present within the shores of the U. S. A. and for many years to come.

Thus our enormous store of crude petroleum is, through research, to be developed more profitably to us all as a chemical reservoir from which to draw new and better products, contributing both to our national wealth and our national safety. Already it has been tapped directly for defense, and a contract has been signed for an \$11,857,000 plant at Baytown, Texas, where the Humble Oil Company will produce toluol, raw material of TNT.

Our chemical armory, so essential to the defense program, is admittedly in excellent shape. During 1914-18 we struggled through a real chemical famine. American textile mills actually shut down for lack of dyes. Potash, necessary ingredient of fertilizers, soared to more than \$100 a ton. Vital coal-tar medicines were rationed at

Real glamour

We bankers do appreciate thoroughly the lesson that you have taught us that research is vital in modern industry; that the company without a forward-looking laboratory staff is not playing fair with its stockholders; that the research appropriation is an insurance premium that must be paid lest the company die.

In very bullish tones (if you will forgive the pun) you have bellowed the triumphs of your research.

You are justly proud of your progress. It is but human to ballyhoo a new product. But all this creates upon the outsider the false impression that yours is an industry in a turmoil of jittery experimentation.

Your growth throughout the depression has been due chiefly to the enormous increase in the production of rayons, plastics, lacquers, and similar chemical substitute materials. Chemical processing in place of mechanical treatment of petroleum, steel and non-ferrous metals, and all the natural textile fibers, has also vastly expanded your basic market. These plain, solid facts have been hidden from us by a pile of propaganda for novelties that but bespangle the fringes of your market. If this be so, and it seems to be, then a table of 20 years' alkali production or a chart showing the growth of acid consumption will portray more glamour to the financial community than the latest rayon stocking encasing the trimmest pair of legs in Hollywood.

Bert H. White, vice president
Liberty National Bank, Buffalo, N. Y.



The laboratory has done an outstanding job in conserving petroleum resources by developing more efficient refining processes and by making valuable products out of what was once waste

Hunting the war profiteer

Let us condemn the profiteer, but let us be gentlemanly enough to condemn *all* profiteers and not one small class. Let us not be so naive that we eliminate the wheat grower when the price of wheat increased 149 per cent during the World War, nor the cotton planter when the cost of cotton increased 125 per cent, nor the iron and steel producer when the average price increased 151 per cent, nor the producers of all commodities when the average price increased 91 per cent. Likewise those of us whose memories are not so short-lived recall the resultant rises in the costs of labor and of housing and of food. There are millions of "forgotten men" when we speak today of war profiteers. And be it said in gentlemanly fairness that, due to the ingenuity of our largest private producer of gunpowder, the cost of cannon powders was reduced 5.7 per cent during the World War and the cost of small arms powder was reduced 20 per cent.

—Major L. A. Codd, Editor of "Army Ordnance"

The price of security

Eternal research is the price of survival in modern industry. No investor or banker can feel sure that his interest in any security is secure in the absence of the assurance given by the knowledge that science is on guard.

—Hugh Farrell



While politicians have blundered about trying to increase farm income, the chemist has made real progress in this field, first by finding new uses for farm products—including former wastes; second, by protecting investment in crops and livestock through developing repellents for pests and cures for animal diseases

fabulous prices to selected hospitals and to the Army. Today, face to face with the identical situation, we have no dearth of any needed chemical. Prices have remained steady. Though the projected needs for total defense, based on an army of 2,000,000 men, far exceed the peak output of the past war's effort, no panic grips either Army officers or chemical leaders. Already, according to the careful and experienced estimates of *Chemical and Metallurgical Engineering*, we are producing for our regular peacetime needs a greater volume of many chemicals than at the top of the 1918 production.

A few of these 1914-18-40 figures with estimated needs for defense reveal graphically the long strides we have taken and substantiate the proud claim of the chemical industry that it is prepared by a reasonable and wholly practical expansion of its present private facilities to meet any emergency.

American Production and Estimate of Needs

	1914	1918	1940	Defense
Sulphur tons	400,000	1,500,000	2,500,000	3,000,000
Ammonia tons:				
Synthetic	None	None	260,000	500,000
By Product	21,000	73,000	135,000	150,000
Caustic Soda tons	215,000	330,000	1,000,000	1,250,000
Soda Ash tons	935,000	1,507,000	3,000,000	3,500,000
Toluol, gallons	1,500,000	14,100,000	25,000,000	65,000,000
Potash (K ₂ O) tons	None	54,805	350,000	375,000
Dyes—lbs.	7,000,000	66,000,000	140,000,000	145,000,000
Bromine—lbs.	50,000	210,000	38,000,000	50,000,000
Chlorine tons	6,000	45,000	485,000	700,000
Explosives:				
TNT lbs.	None	192,000,000	10,000,000	600,000,000
Picric acid—lbs.	None	140,000,000	Little	25,000,000
Smokeless Powd.				
Lbs.	1,800,000	513,000,000	30,000,000	800,000,000
Mercury fulminate	None	600,000	—	350,000

Plainly there are few dire shortages of essential chemical materials even for such a liberal estimate of munition requirements and, on the record of past performance, the average layman would be willing to leave the details of the defense program to the industry's own experts. But the politicians could not resist the temptation to put the T.V.A. into the munitions business or to locate some new government-owned, privately-operated plants with an eye more to where the votes than the raw materials come from.

The 150 ton capacity synthetic ammonia plant to be built at Muscle Shoals raises the old ghost of government competition with the fertilizer industry. It certainly puts the T.V.A. in a position to produce a complete mixed plant food. T.V.A. argued for the new plant on the ground that it had land, utilities and an obsolete ammonium nitrate plant—cost and time advantages the value of which are disputable and certainly no greater than would accrue from an expansion of existing ammonia plants owned by several different chemical companies.

They also pleaded that an output of ammonia would enable them to extend their educational work among farmers in concentrated fertilizers from demonstrations with superphosphate to

complete high-test fertilizers. But 150 tons of ammonia a day is equivalent to a yearly output of 750,000 tons of complete mixed fertilizer, or a tenth of the whole country's total fertilizer consumption. This, it was pointed out, is unreasonably beyond usual pedagogic limits. There was a lot of manoeuvring behind the scenes and word finally came from the White House that the Army Ordnance Corps should contract with T.V.A. to design, build and operate a synthetic ammonia plant as a part of a contract for ammonium nitrate. This was an alchemical victory over the Army and the Defense Commission's staff of chemical experts.

Such a needless diversion of the defense program to support a favorite project, which is already in direct competition with private enterprise, is disconcerting to those who hope the Government will enter as little as possible into the direct production activities of national defense.

This T.V.A. ammonia plant is but the latest of a multitude of political projects for farm relief. Most of these have had the alchemical purpose of reducing yields and raising prices, so that they are in bold contrast to some notable contributions which research had made in the past ten years to solving the same agricultural problem.

Practical farm relief

HAY is our universal crop. Some 85,000,000 tons are cut, cured, and stowed away in haymows every year; yet each year, due to wet weather in the haying season, from ten to 100 per cent of the crop is locally lost, and field curing always reduces the crop some 20 per cent through waste. Moreover, spontaneous combustion of hay sets the appalling fire record of one barn every 20 minutes, day and night, every day. Here are some palpable wastes that disturb those who cherish the old-fashioned notion that saving is one way of making.

If hay might be stored in silos the fire hazard would vanish. To house the national hay crop in barns takes 32,000,000,000 cubic feet, or a barn 5,000 miles long, 40 feet high by 30 feet wide. If chopped, it could be piled into one giant silo 552 miles high and 375 feet in circumference, or 3,500,000,000 cubic feet. Silo vs. barn equals a saving of nine-tenths of the cubic space, which is a lot of building and materials. However, because hay is high in proteins and low in carbohydrates, it does not ferment as does corn when cut wet or stored damp. It rots.

For a long time research has wrestled with this problem. A Finlander, A. F. Virtanen, found the first practical way of treating hay for silo storage, a method that improves its palatability and food value, is easily applied and cheap. He used a combination of hydrochloric and sulphuric acids, known as the AFV (his initials) acid treatment. Sprinkling the new-cut hay with molasses is a second method—tasty from the cattle's view but costly from the farmer's.

Scientific research has recently developed the most promising method of all, the Phosilage treatment, fathered by the Monsanto Chemical Company. Essentially it consists of spraying the hay at



Every day applied research is making hard jobs easier, although the results are not always so obvious as here where the workman finds his load of aluminum kegs so light he can carry them on two fingers

The frontiers still beckon

A map of the application of science to our needs looks much like a map of the North or South Pole region, where a few points are known, but the region is mostly uncharted. We find ourselves in a position similar to that of the pioneers in America of 100 years ago, who were wandering west, having some idea of the outline of the country before them, but yet did not realize what undreamed-of opportunities lay ahead.

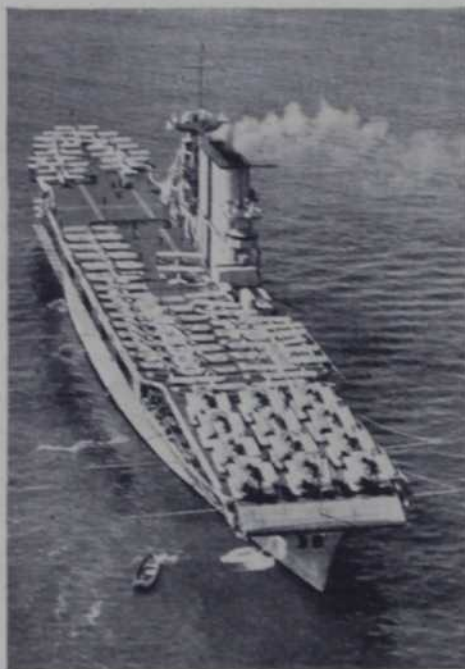
They were not thinking in terms of minerals, petroleum, agricultural products for export, of the lumber industry in all of its ramifications, and less yet were they thinking of those things which we ourselves have not yet developed but which we can see in the distance—the utilization of millions of tons of organic waste products from pulp plants, the application of new scientific data on the growth of plants to render such enterprises independent of climatic and soil conditions; and while thousands and tens of thousands of men have worked on metallurgical problems, we know that the future of steels and special alloys made in new ways offers tremendous possibilities.

—Gaston DuBois, Vice President
Monsanto Chemical Co.

Taxes can't buy judgment

After careful consideration and discussion with our experts, I have not yet been able to discover what seems to me a practicable method for the federal Government to introduce any plan of rewards or penalties in the tax system which will promote the exercise of sound business judgment. It seems to me that the raising of revenue should be the primary aim of direct federal taxation. Even with this as the sole objective, it is sufficiently difficult to work out a reasonable and equitable plan of taxation.

—Charles K. Weston,
of E. I. du Pont de Nemours & Co.



Salt water is a surprisingly destructive corrosive agent. Yet these airplanes take no harm from its spray. The chemist has seen to that. Without his efforts, naval aviation would be a far greater drain on the taxpayers' pocketbooks. The Navy protects our shores, but the chemist protects the Navy.

Profits on the defensive

The conviction is widely held, and with reason, that it is the deliberate purpose to make all private business unprofitable as a prelude to its expropriation by government as the sole operator and employer, under the false plea that the system of free men in a free economy is no longer capable of sustaining the general welfare of the country.

—Sterling E. Edmunds of the St. Louis bar

the chopping machines with a fine, light mist of phosphoric acid, which is easy to do, economical, and adds a valuable food element, phosphorus, which is often deficient. At the same time it enhances the fertilizer value of the manure.

Down South, research has revived an old agricultural industry and brought in an entirely new one. Rosin and turpentine obtained by tapping southern pine have, since colonial days, been the basis for a great American industry, exports of which have more or less dominated the world markets for naval stores. As operated, it has always been a small unit business, thousands of individual producers sending their outputs to factors at the shipping points. Naturally it has been a business in which standardized product and stabilized price have been all but impossible.

Profits from old stumps

IN 1920, the Hercules Powder Company became interested in the pine stumps left after lumbering. These stumps, known to be rich in resinous materials, were abundant over a wide territory. Research, starting at scratch, has developed a thoroughly controlled, large-scale method of collecting these stumps, cleaning them, chipping them and, by a steam distillation process, extracting their valuable sap. More than this, perfectly standardized grades of both rosin and turpentine can be produced, the best considerably higher in quality than ever before was available commercially. Still not content, researchers have gone into the processing of the valuable terpenes, which they isolate and which are the raw material not only of synthetic camphor but also of synthetic perfume.

The late Dr. Charles H. Herty made this same southern pine available for newsprint paper by removing from young slash and loblolly those same resinous products that Hercules finds in the old stumps. This has created a market for pine saplings that have grown up wild following the lumbering operations of the past generation.

Since these can be deliberately cultivated in five-years' time due to favorable climate, the vision of a new industry looms bright. It brings with it the promise of freedom from imported wood pulp and the conservation of old stands of larger spruce and pine, north and south, which would make good lumber. Since 1934, in Mississippi, Louisiana, and Texas, \$50,000,000 has been invested in the paper industry, all of it private capital, giving direct and indirect employment to more than 6,000 persons.

One industrial development inevitably leads to another, and the expansion of the southern pulp industry created a new demand for salt cake (sodium sulphate) which accounted in part for the rise in imports of this chemical from 70,000 to 197,000 tons between 1930 and 1937. Recognizing that a domestic supply of salt cake is essential to protect this growing southern industry, the Mathieson Alkali Works set to work studying how to provide the paper mills with this essential combination of alkali and sulphur. In late 1939 they offered a new product, synthetic salt cake, which in some respects is superior and which fortunately has been available in suffi-

cient quantities so that, when the war cut off imports, there was no ballooning of prices. During World War I, salt cake rose from \$11 to \$35 a ton. In World War II, from a high price last year of \$25, the current price has been brought down to \$17.

Speaking of paper suggests that in printing ink there has been a veritable chemical revolution in the past few years. Printing inks, like paints, are powdered pigments of various colors, suspended in a liquid vehicle. When Gutenberg printed the first book, he simply borrowed from the Dutch and German artists their discovery that linseed oil, well boiled, is a vehicle of excellent body with good binding and drying qualities. With mortar and pestle he ground into it soot. Until 20 years ago, printing ink remained practically unchanged. Grinding was done by machinery and a little rosin or wax was added to improve the binding qualities. Soot from the chimneys had been replaced by carbon black, which is soot made in a plant by burning natural gas. Then the ink industry began to study its products in the light of chemistry and physics and from the customers' point of view.

The picture weeklies of large circulation had created a time problem. The Interchemical Corporation developed Vaporin, an instant-drying ink, and the speed of the magazine presses increased from 300 to 800 feet of printed paper a minute. Gravure printing is even faster—up to 1,200 feet a minute or a mile of paper 48 inches wide, fully printed on both sides in five minutes. To keep step with mounting circulations, newspaper presses have, in the past 20 years, increased their output from 25,000 to 50,000 impressions an hour. One paper alone prints more than 3,000,000 copies of its Sunday edition and, in doing so, consumes 45,000 pounds of news black ink, 105,000 pounds of gravure inks, and 26,000 pounds of colored inks—total 176,000 pounds of ink on 12,000 tons of paper. At the same time plastic and fiber packages and cellophane wrappings created new ink problems which have been solved by tailor-made inks. And, in all fields, an insistent clamor for more and better color has been answered by synthetic pigments of clearer shade and greater fastness.

All industries benefit

SO IT GOES on throughout all industries, new materials and new processes; more goods and better goods for us all.

American chemists have gone out into new branches of chemistry, made progress that leads the world, creating whole new industries. Most conspicuous in this field is the industrial exploration of petroleum gases by Carbide and Carbon. Their original development of aliphatic chemistry has made a distinctively American contribution and brought to the market not only the anti-freeze, Prestone, but also scores of alcohols and plasticizers, esters and ethers, used in producing hundreds of our new chemical products. By developing the chemicals supplementary to the synthesis of acetic acid (the acid of vinegar) from coke and limestone, the Niacet Chemical Company is supplying another line of the "chemists' chemicals" and the Sharples Solvents Company has performed

What the future holds

When I stop dreaming and consider the past which I have seen, it becomes continually clearer that we can never reach a limit of discovery while we work. Each new item of our electrical past has opened still more fertile areas in the unknown and will continually do so if we depend less on dreams and more on keeping awake.

—Willis R. Whitney, Vice-President,
General Electric Co.



Constantly on guard against disaster, industrially supported science counts no job too big—or little. This man is conducting tests to find a non-skid floor wax in the hope of reducing household accidents

Constantly looking ahead

Only a cursory glance at what is taking place in the world today is needed to impress on one the importance of constant search for new products and processes. And new products and processes will be equally important to take up the slack of men, money and materials when our present emergency shall have ended. As a nation we should be spending ten—even 100 times as much as we do for research.

—Alfred P. Sloan, Jr., Chairman,
General Motors

How taxes stifle progress

Taxes, especially when heavy, are almost always partly paid at the expense of what would otherwise have been saved and added to capital.

—John Stuart Mill,
"Principles of Political Economy"

Test tubes make no wars

Those who would attribute to our scientific development the blame for our present national and international ills take an entirely superficial view of the picture. They overlook the horrible wars that have been waged all down the years when there was no science as we know it today. They overlook or wilfully ignore the well recognized fact that the lust for power by one man, or a small group of men, leads all too frequently to that great social and economic disaster called war. Until indoctrinated race antipathies and hatreds, envy and greed for power are eliminated from human nature through spiritual regeneration, we shall have no solution of this fatal disease which afflicts humanity. Science, though it is able to confer the richest blessings upon mankind, is not able to change the heart of man and insure that the great increases in scientific knowledge will be beneficently applied.

—Dr. C. M. A. Stine, Vice President,
E. I. du Pont de Nemours & Co.



HORYOCZAK

This thirsty workman takes a drink, as we all do, without worry as to whether the water is pure. It undoubtedly is, because chemistry stands on guard. If it didn't, none of us would dare to enjoy the convenience of a city water system.

we have reviewed shows whole industries and new jobs have been created at less cost and upon a sounder basis than any governmental pump priming has ever accomplished.

No Government can do this pioneering for our industries. No democratic Government dares risk tax money in 99 failures for a single success. No totalitarian Government plans for individual benefits. We know what individual initiative and risk in the expectation of profit has given us. Compare this progress with prophecy of Rexford Tugwell:

New industries will not just happen as the automobile industry did; they will have to be foreseen, to be argued for . . . or seem probably desirable features of the whole economy before they can be entered upon.

Who would have argued for the great synthetic chemical industry when the school boy, Perkin, found a purple powder in the bottom of his test tube? Who would foresee a plastic airplane when Leo Baeckeland began experimenting with the sticky condensation products which many other chemists had made by chance and discarded with disgust? Who would be able to prove benefit to the economic system of \$1,000,000 spent studying the size and shape of molecules?

The politician's boast that, given sufficient funds, he can lift the burdens of mankind is still an oratorical gesture. The laboratory, which makes no boasts, has gone far toward the goal of the ancient alchemists: Gold and the Elixir of Life.

Even in those primitive days, gold was sought less for itself than the goods which it would buy. But, had the ancient succeeded in turning lead into precious metal, he could not have bought an automobile, an air-conditioned home or modern plastics. Whatever the efficacy of the Elixir of Life, modern research has lessened the dread of pneumonia and many other diseases that plagued the ancient. What it may offer in the future, even its disciples do not know. All they can say is that each new discovery opens new possibilities of better living for everybody.

That has always been the goal of the American people.

It is still their goal. Their danger today is that they may be led to try to reach it through the promises of the political planners instead of the tested performances of industrial research.

Washington and Your Business

Tale of a Lucky Stiff

LIFE IS FULL of coincidences. The other day the story of the engineer fired by the Pennsylvania railroad for drunkenness came to this desk. He was so perfectly potted that he "staggered under the stoop" according to his fireman, and that must have been considerable of a stagger if the stoop was of the regulation three foot height.

The railroad fired him.

The N.L.R.B. has ordered him reinstated with almost two years' back pay. A competent physician and the members of his train crew testified that the engineer was too drunk to handle a train safely. He had once before been dismissed for the same offense. A law of the state makes it a penal offense for a railroad to permit a trainman to continue work when intoxicated.

Girls, This Will Just Slay You

NOT in a coon's age could this department have guessed the reason assigned by the N.L.R.B. for ordering the railroad to put this victim of the capitalistic system back at the throttle. The N.L.R.B. pointed out that the order of dismissal was not issued until February 21, 1939, although it was dated Feb. 2. The engineer got his pots on during the morning of Jan. 28. During the interim between Jan. 28 and Feb. 21 the road conducted two investigations, which the engineer himself said were fair. But the N.L.R.B. feels this hiatus proves the road was prejudiced against the man, and it—the N.L.R.B.—could not permit this. The fact that the man was so drunk that his own crew refused to go out with him seems not to have penetrated. The rest of us will continue to be happy that the Pennsylvania road refuses to permit drunken engineers to run its trains, even if the N.L.R.B. in effect rewarded the man for getting drunk.

How's This for Coincidence?

AS FOR the coincidence referred to some distance back—The day this incident of the bedevilled railroad and the soused engineer reached this corner, the House finished the passing of the Logan-Walter bill, and put it up to the President. It is believed on Capitol Hill that the seventy-seventh Congress will be able to pass it over a presidential veto. The purpose of the Logan-Walter bill is to make such assumptions of power as the N.L.R.B. showed in this case impossible in the future. Nothing in the Labor Law gave the N.L.R.B. authority to do what it did. It just did, and there is no way of checking it.

More of Law, Less of Men

EVEN the A. F. of L. seems to have come around to the conclusion that the Labor Act must be amended if the rights of labor are to be safeguarded. It had been assumed that the placing of Dr. Millis as third and controlling member of the Board would satisfy Labor, but the A. F. of L. convention showed signs of recognizing that neither capital nor labor dare rely on anything but law for protection. The Administration's supporters still insist that, if the bureaus and corporations are compelled to obey law rather than impulse, they will be terribly handicapped. It is almost regulation now to say that, if a bureau gets its hands slapped, the defense effort has been gravely injured.

Another Shot at Solvency

THE INSURANCE business seems threatened by another attack from Administration sources. The long withheld SEC report to the TNEC urges Federal regulation. Object seems to be to gain control of insurance finances. Unconfirmed report is that some companies are willing to accept some Federal collaboration, perhaps in the form of Federal guarantee of policyholders' dividends. The enforced investment in low-rate government bonds during the past few years has made it difficult for the companies to maintain these dividends at present rates, and the regulative camel sees a chance to get its head in the tent. Nothing definite ahead except another battle.

What's Become of Old Friend?

THAT industrial mobilization plan by which the Army and Navy were to click overnight with American industry seems to have been scrapped. It was started in 1921, was enthusiastically worked at for 17 years, and got nowhere in 1940. Questions will be asked in congress.

Proscription of the Press

BEST present information is that early in 1941 an effort will be made to clamp down on journalism. No details as yet, but under cloak of the national defense effort an attempt will be made to put through some form of censorship. Straws have been showing the direction of the administrative wind.

Make Way for Priorities

THE growing complaints that the defense effort has been confused and noisy are beginning to have an effect. Likely that the NDAC will be given a head—perhaps Donald Nelson—and authority to clap down priority orders and fix prices. NDAC personnel not apt to be changed. Nothing wrong with the Commission except the lack of method forced on it.

Thorny Crowns for Columnists

AN UNPARALLELED exhibition of wonders may be scheduled by the Seventy-seventh—and it may not. Some congressmen are toying with the idea of calling the columnists to testify on the origin of some of the arguments offered for getting this country into something a good deal shorter of war than seems strictly necessary. The congressmen have no thought of making a sally at the press and disclaim any personal or political rancor. They only say that fathers and mothers and taxpayers seem to be less emotional than the columnists.

Short Inquiry on Bottlenecks

THE N.Y. Committee on Engineering Training for National Defense reports the results of a survey of 174 key manufacturing plants out of a total of 28,000 in the New York industrial area as to the need for emergency technical training of men to "meet an expected shortage of engineering personnel in industries essential to national defense." In the aircraft industry alone the "shortage of engineering personnel was revealed as an acute bottle-

neck." An "appalling" shortage is threatened as the demands of the defense program increase. A summarized conclusion is that "the aviation industry of this area alone could absorb at least half the entire normal yearly output of graduate engineers in the entire country."

Other Necks in Bottles

Foundation. But they do not emphasize sentences found in the synthesis of field reports:

The table on Prospective Need for Technicians is somewhat incomplete because of the inability or disinclination of employers to commit themselves now. They will not, in general, estimate needs on the basis of government announcements or contracts "cleared." They want to see orders first. (Italics by the committee.) There are apparent justifications for underestimates of need.

O. R. McGuire wrote a booklet some years ago on the difficulties of dealing with Uncle Sam which is now in its third edition and in steady demand.

Each Fish has Two Sides

his stockholders will grow morose. The committee thinks, however, that the Government's bottleneck may be stretched eventually.

"It may be expected that Government technique in specification writing will improve. The threat of priority scheduling should hasten this."

Unless every bit of information leaking out from the National Defense Commission is false it is struggling with a bottleneck of its own. Its members work together in harmony but they have no coordinator with authority. Every matter of importance must pass over the desk in the White House.

Always Balm in Gilead

orders is too much. James S. Kemper, president of the Chamber of Commerce of the United States, recently recalled that, in the ordering orgy of the first world war 41,000,000 pairs of army shoes were ordered for the Army of 4,000,000 men, and 86,000 horses got 50,000 sets of double harness, 100,000 sets of single harness, 945,000 saddles, 1,500,000 curry combs, 2,000,000 feed bags and 2,800,000 blankets. There were superhorses in those days.

Oil Scandal Poops Out

can oil for 79 cents a barrel.

There is reason to believe that the Navy would not have dared take such a step without the sanction of the State Department.

But the S. D. says it gave no advice, one way or the other. And there is a provision in the "Buy American" Act of March 3, 1933, to the effect that:

Only . . . articles, materials, and supplies . . . manufactured, mined, or produced . . . in the United States shall be acquired for public use.

THE EXPERTS who conducted the quiz are regarded as the liveliest to be found. They were backed by a \$9,000,000 congressional appropriation and a grant from the Carnegie

Foundation. But they do not emphasize sentences found in the synthesis of field reports:

The table on Prospective Need for Technicians is somewhat incomplete because of the inability or disinclination of employers to commit themselves now. They will not, in general, estimate needs on the basis of government announcements or contracts "cleared." They want to see orders first. (Italics by the committee.) There are apparent justifications for underestimates of need.

O. R. McGuire wrote a booklet some years ago on the difficulties of dealing with Uncle Sam which is now in its third edition and in steady demand.

THE able educators who made up the New York committee may not have considered that, if a manufacturer sticks out his financial neck and then does not get the orders,

his stockholders will grow morose. The committee thinks, however, that the Government's bottleneck may be stretched eventually.

"It may be expected that Government technique in specification writing will improve. The threat of priority scheduling should hasten this."

Unless every bit of information leaking out from the National Defense Commission is false it is struggling with a bottleneck of its own. Its members work together in harmony but they have no coordinator with authority. Every matter of importance must pass over the desk in the White House.

OPTIMISTS may reflect that it is by no means certain that we will get into the war or when, or how far. A collateral reflection is that maybe too much enthusiasm in signing orders

is too much. James S. Kemper, president of the Chamber of Commerce of the United States, recently recalled that, in the ordering orgy of the first world war 41,000,000 pairs of army shoes were ordered for the Army of 4,000,000 men, and 86,000 horses got 50,000 sets of double harness, 100,000 sets of single harness, 945,000 saddles, 1,500,000 curry combs, 2,000,000 feed bags and 2,800,000 blankets. There were superhorses in those days.

THE NATION (a periodical) reveals that the Navy bought 500,000 barrels of fuel oil from the Standard Oil company at 89 cents a barrel when it could have bought Mexican oil for 79 cents a barrel.

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There is reason to believe that the Navy would not have dared take such a step without the sanction of the State Department.

But the S. D. says it gave no advice, one way or the other. And there is a provision in the "Buy American" Act of March 3, 1933, to the effect that:

Only . . . articles, materials, and supplies . . . manufactured, mined, or produced . . . in the United States shall be acquired for public use.

A qualifying clause permits this clause to be evaded if "inconsistent with the public interest." It might be worth while recalling that the State Department is still trying to induce Mexico to pay for the American oil properties it expropriated some years ago. That effort is, presumably, in the "public interest." Countries usually try to protect their nationals abroad. The S.D.'s hand would not be upheld if the Government bought Mexican oil. Viva Hull.

Painting Up for the Taxpayers

are just the cosmetics of Government. So far as reported at the time of writing the defense program will need a lot more clerks and stenographers. The Department of Commerce alone recently added 5,000.

Not Shooting at Jesse H. Jones

THAT paragraph must not be taken as a round the table shot at Jesse Jones. When he took Harry Hopkins's place he found the Department of Commerce fairly well ruined. Before Mr. Jones can know what is going on he must get the facts and a staff is needed. Hearsay is that his show-me attitude toward the Latin-America republics which would like to borrow from us led to the suggestion that the \$2,000,000,000 stabilization fund be substituted for the Jones' mechanism. This has not added to Mr. Morgenthau's happiness. The stabilization fund was his ewe lamb with a ribbon round its neck.

Just Sheer Nastiness

WHICH offers an introduction for an unproven and probable story with a strong acid content. Shortly after the election, Secretary of the Interior Ickes resigned loudly and then sat back and waited. The hope of the Corcoran-Hopkins-Jackson crowd—Ben Cohen seems to have withdrawn into the silences—was that Jesse Jones might be moved to resign by Mr. Ickes' heroic example and that Ickes could then be named in his place. Jones was not moved. He likes his job, where he can play to his heart's content with fiscal mathematics, he believes he is doing a good work and he shudders at the thought of what might happen if he got out.

77th May Ask for New Deal

ADVANCE reports from the Seventy-seventh Congress are that an effort may be made to give private capital a better chance to make a little profit from the defense program. The situation at present is that the banks are filled to the eaves with idle money—see any recent report for confirmation—while the Government is planning to carry most of the costs out of its borrowings. A reversal of this should give the private investor a chance to make profitable use of his funds, instead of being compelled to buy government bonds which pay low interest. Wm. McC. Martin, head of the Stock Exchange, is urging this as a return to "a democratic principle of finance."

More Guff Sent to the Ash Bin

IN SPITE of the sad old men who insist that the day of opportunity has ended and that only Government can do anything from now on, there seem still to be chances for those who can see them. Recently this corner had a chat with a young man who wandered into a large city, saw that it needed the kind of a restaurant he had been thinking about, hocked the family jewels and went to it. He was



TO A NEWS PHOTOGRAPHER

"CHEESECAKE" means pictures like this →

Publicity men have long known that photographs of bathing-suited beauties make tourists and vacationists change long-laid plans. Such photographs are known to news photographers as "cheesecake."



TO A BUSINESS MAN

"COMPTOMETER ECONOMY" means ACCURATE FIGURES FASTER with LESS EYE AND NERVE STRAIN

NO CIPHERS appear on Model M answer dials unless they are part of actual answer! The answer, for example, used to read 00000054520. Now it reads 54520.



The latest improvement in the Model M Cushioned-Touch Comptometer is the elimination of all ciphers in the answer register which precede the actual answer. Eye travel (an important fatigue factor) is limited to the length of the answer, instead of to the full width of the machine. Likelihood of error, in reading answers, is reduced. Figure-work cost is decreased.

Along with the Comptometer's exclusive Controlled-Key safeguard, which eliminates errors due to faulty key-manipulation, this newest Comptometer improvement is finding high favor with office appliance operators.

With executives, concerned with end-results, this improvement is one more reason for specifying Comptometer adding-calculating machines and methods — for

all phases of office figure work.

Your Comptometer representative is prepared to demonstrate "Comptometer Economy" on your specific figure-work problems. Telephone him — or write to Felt & Tarrant Mfg. Co., 1712 N. Paulina Street, Chicago, Ill.

COMPTOMETER

REG. U. S. PAT. OFF.

ADDING-CALCULATING MACHINES

not a restaurateur by profession. He had been purveying little rolled up sandwiches and crackers with goo on them to housewives who planned to give cocktail parties. Now the young man has 27 restaurants and hungry people stand in line to get at his tables.

Government is a Science?

A YOUNG man was fired by the Department of Commerce.

"He," said his former associates, "was red as Harry Bridges."

So—by way of proof that government is a structure scientifically designed—he landed a job as adviser to the National Defense Commission.

Which Calls for Another

ANOTHER \$10,000 a year young man in the Department of Commerce was at the time of writing hair-hung and breeze-shaken. If diplomatic inquiry shows that Miss

Marguerite Le Hand, the "Missy" of the President's secretarial staff, said prior to his appointment:

"He is a nice boy. He should have a job—" He is safe in the seat for four more years. But if she only said "he is a nice boy" he is on his way out right now.

Better Shake the Barometer Again

BACK fence gossip is that business men who think the President has changed his attitude toward business because;

He has been nice to business callers.

He gave Senator Pat Harrison a big smile during that pre-fishing trip conference on our fiscal fix.

He has not asked retroactive tax payments and

He has opposed the general sales tax—

Should remember that Tommy Corcoran has been restored to favor, "Bob" Jackson is presumably tapped for the Supreme Court, and Harry Hopkins was the President's companion on the Cruiser *Tuscaloosa*.

Labor Stuff "Must" Reading

FEELING here is that for the coming year reports on organized labor should be required reading. At present, for instance, the A. F. of L. and the C. I. O. both favor giving aid to

Great Britain, so long as Britain can pay. Labor's stand on lending more money to Britain, making an outright grant of cash or underwriting large credits, or getting more deeply into the Far Eastern mess, has not yet been clearly developed. These and similar activities will be subjects of early controversy in the Seventy-seventh Congress.

John L. Lewis may be active in an effort to form a labor bloc of voters in the next four years and less active in C.I.O.'s internal affairs.

Murray will dampen down the Reds in that organization and be a conservative force. Green will try to balance between the Administration and Congress. No chance that C.I.O. will return to A. F. of L., but relations will be improved. Both organizations will frown on strikes in defense works and in return will demand many concessions. Anyhow, that's the dope of the day.

Two Projects to Be Watched

FLYERS have been put out by persons representative of but not connected with the Administration which are worth observation. One is a plan for government propaganda

for "better nutrition." The idea is to promote the sale of more food, and a free issue of food to the needy on some sort of an undefined ration card plan. The other is a scheme for the physical training of youth in an expanded C.C.C. organization, based on the alleged physical deficiencies of so many of the men called for the conscript

army. Nothing as yet definite about either. Arrows shot in the air.

Eccles and the Gold Business

SOME financial sharps indicate that Marriner Eccles's recent pronouncement on gold plus economy is an opening wedge for the return of gold to popular pockets. Discussion con-

fused as yet, but Eccles at least dropped a broad hint that this might be done. Idea will be permitted to ferment for a time.

Why Bring This Up Just Now?

C. H. FRENCH, once comptroller general of the Philippine Islands when Leonard Wood was governor general, reached town with this disquieting statement:

The Philippine Government is the only government in the world which has had and still has a system of bookkeeping which shows at a glance what the coming year's costs will be, how much money must be raised and by what taxes, what debts are owed and what are tangible resources of the Government.

Mr. French put that plan in operation and thinks it shows what can be done by any government which really wants to do anything of that kind. No echoes heard as yet.

This Sale Seems Slow

THE November *Bulletin* of the N.Y. State Chamber of Commerce quotes Percy H. Johnston, president of the Chamber:

It is unfortunate that the St. Lawrence project is being "sold" in the U.S. on the ground that Canada needs it to help win the war, while it is being "sold" in Canada as something necessary to maintain friendly relations with the United States. Neither selling argument has any sound foundation.

Inquiry on Capitol Hill seems to show that the sales are very slow.

Dear Generals, Say It Ain't So

MUTED comment is heard in the younger circles of the armed services that both Army and Navy chiefs are holding fast to their pre-war ruts. The young men say tor-

pedoes and bombs have obsoleted battleships, that the new guns promise no marked advance over the old guns, that fast and highly mobile artillery should be the reliance in such a country as ours, whereas the Army has gone haywire on tanks and that, if we were to be invaded, our harbors and bays will have no defense. Admirals and generals react violently to these suggestions.

Good Business Through 1941

BUSINESS statisticians hereabout think that the outpouring of billions will make certain of good business in almost all lines through 1941, with occasional ups and downs. A

heavy continued annual cost for army and navy upkeep thereafter is certain, although precise figures are not now obtainable. Plans to defer public improvement projects in order to take up the slack when the defense spending begins to taper off are being made but have not yet stirred any political enthusiasm. Prospect that efforts will be made to convert much of the public debt into English-type non-redeemable consols, by which the interest cost would be perpetual but no money need be raised for redemption.

Herbert Corey

ACTION, America!

WELSH



TO MEET THE CHALLENGE OF THE TIMES

Business must eliminate delays, errors, losses and waste

ACTION, America! Clear the way for new speed and economy records in store, office and plant operations. • Launch an immediate, vigorous offensive against the rising costs of doing business. • Uproot and destroy the causes of delays, errors, losses and waste. • Investigate

the profitable performance of Methods which speed operations, insure accuracy, reduce costs, increase profits. • To this end, call in Addressograph. • You'll find ADDRESSOGRAPH SALES AGENCY listed in principal city telephone books. If you prefer, write to . . .

ADDRESSOGRAPH-MULTIGRAPH CORPORATION • Cleveland, Ohio

ADDRESSOGRAPH-MULTIGRAPH OF CANADA, LTD., TORONTO • Sales Agencies in Principal Cities

Reduce Payroll Expense • Keep Customers Active
• Prevent Losses in Fabrication • Avoid Collection
Losses • Avoid Misdirected Deliveries and Ship-
ments • Handle Stockholder Records Better

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TRADE-MARK REG. U.S. PAT. OFF.

Speed Up Handling of Orders • Maintain Effective
Inventory Control • Stop Loss of Production
Time • Route Salesmen Profitably • Reduce Cost
of Mailings • Reduce Expense of Records, Reports

METHODS THAT SAVE TIME AND MONEY AND INCREASE PROFITS

No Business Can Escape Change

Business inaugurates the new year with new products to meet consumer needs

1 • GLASS building blocks are now being made with a screen of glass fiber in the center which cuts down sharply the transmission of solar energy. It transmits only a soft diffused light.

2 • A NEW adding-figuring machine has two registers which give group totals and grand totals simultaneously. Amounts recorded enter both registers automatically although items may be subtracted as well as added in either register.

3 • A GROUP of phosphorated oils now available are useful as emulsifying agents, dispersants and wetting agents. They are said to be superior to sulphonated oils in many cases.

4 • AN ASPHALT tile which is greaseproof and alkali resistant has now been announced in 21 available colors. It is particularly suitable as a resilient flooring for areas subject to spillage of oils, fats, or greases.

5 • FOR pumps and compressors there are now made special leather barrel cups and packings that do not harden with age or dry up when idle. The special treatment gives increased strength and resistance to wear as well as improved resistance to petroleum products, alkalies, solvents and water.

6 • A NEW soda water draft arm for fountains is said to make possible the dispensing of drinks carbonated approximately 30 per cent higher than formerly or the equivalent in this respect of bottled beverages.

7 • A TUBING for electrical insulation is now made varnished both inside and outside, giving superior moisture resistance and aging properties. It slips easily over wires, has a smooth inside surface, withstands heat up to 425 degrees Fahrenheit.

8 • A VENTILATING device for use in brick foundations or other places requiring a small amount of light and ventilation is a cast block of semi-steel with fixed louvers to deflect weather and a screen to keep out insects. It is one brick wide and four high and is mortared in with the brick work.

9 • TO INDICATE dissolved oxygen in boiler feed water there is now an automatic continuous recording instrument with an accuracy that can show dissolved oxygen of one part in 400,000,000.

10 • MINIATURE lumber materials and millwork are now available for making model houses on a scale of one-half inch to the foot. Doors, frames, shingles, siding, other pieces permit experimenting with exterior design and building of replicas.

11 • A NEW incinerator for home use does not require fuel, but after lighting with waste paper has a down draft which dries other refuse and burns either wet or dry waste.

12 • A NEW projector of 16 mm. film is designed for automatic repeat projection with a time interval between each showing. It projects a film up to 400 feet or any desired part of the film without cutting or loop slicing and rewinds and reprojects without attention.

13 • FOR inking in lines a draftsman's aid is now made with two pieces of transparent plastic formed with the ruling edges far enough off the paper surface to prevent smearing. The ruling edges are quickly turned as wanted.

14 • A NEW portable hoist has a capacity of four and one-half tons yet is sufficiently light weight to be easily portable. It is operated by a ratchet handle, works equally well vertically or horizontally as a puller. Safety hooks which open slowly under overload prevent damage.

15 • FLUORESCENT lamps are now available in a six-watt nine-inch size and in a 100 watt 60 inch size. The small pencil-sized lamp can be used in many places unfitted to the use of larger lamps.

16 • A CLEANING material for home use is now specifically intended for removing yellow rust streaks in bath tubs and sinks. It also removes stains from enameled surfaces and tiles.



17 • A RADIO designed for home, office or vacation includes phonograph and recorder in an easily carried case. It weighs less than 20 pounds, is low priced.

18 • FOR increasing thread area in sheet metal there is made a square clinch-on nut which is cold-drawn, held to close tolerances, yet at low cost.

19 • A PHENOLIC molding compound has been developed with good impact resistance and low frictional resistance for bumper shoes and the like. It contains graphite.

20 • A WHITE porcelain enamel is now made without antimony which fuses at the same temperatures as antimony enamels. Less warped ware and faster production are claimed.

21 • A SMALL coin-holder for automobilists is attached by suction cup to windshield or dashboard. It holds half dollars, quarters, dimes, nickels, and pennies—simplifies paying tolls, roadside purchases.

22 • AN ELECTRIC eraser is now made with a hollow shaft in which a seven-inch eraser is used. Frequent changing of erasers is eliminated—a chuck at the lower end permits the rubber to be fed out as it wears.

23 • A PORTABLE drawing machine, light-weight and economical, is available for paper sizes 9" by 12" to 18" by 24". Detachable scales are used and architectural, engineering, mechanical, or metric styles of graduation are made.

24 • A NEW concentrated detergent is now available the strength of which will permit economies that may broaden its use. It is almost equally effective in hard or soft water, is a wetting and penetrating agent, and dyeing assistant. It is recommended for all fibers.

—W. L. HAMMER

EDITOR'S NOTE—This material is gathered from the many sources to which NATION'S BUSINESS has access and from the flow of business news into our offices in Washington. Further information on any of these items can be had by writing us.



2 Star Attractions

EVERY NIGHT and
ALL DAY SUNDAY
Long Distance rates
are lower

CLEVELAND

TO
Detroit . . \$.35
St. Louis . . .90
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CHICAGO

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Des Moines \$2.00
Cleveland . 2.75
Miami . . . 3.00

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New York . . .95
Dallas . . . 1.60



ATLANTA

TO
New Orleans \$.85
Miami . . . 1.15
Oklahoma
City . . . 1.35

PHILADELPHIA

TO
Boston . . \$.60
Indianapolis 1.05
Kansas City 1.60

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TO
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Washington .75
Birmingham 1.60



NEW YORK

TO
Akron . . \$.85
Cincinnati 1.10
Miami . . . 1.65

BALTIMORE

TO
Pittsburgh . \$.55
Chicago . . 1.10
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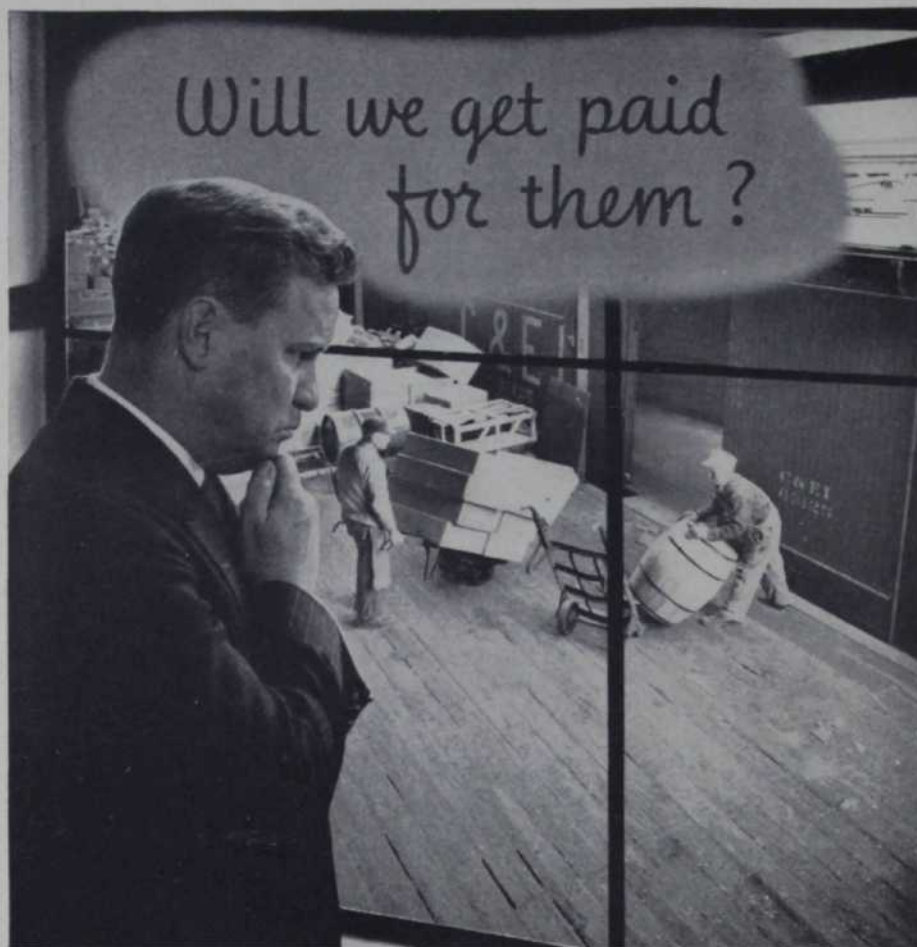
After seven every evening and all day every Sunday, Long Distance telephone service offers a bargain bill.

It's an all-star "talkie," rich in sound effects, full of human interest, featuring your favorite friends and relatives.

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★ (The night and Sunday rates shown here are for 3-minute, station-to-station calls. You'll find rates to many other points on the inside front cover of most telephone directories.)





ANOTHER SALE... Perhaps!

There goes your merchandise. There goes the result of your salesmen's spade work and of your credit manager's faith. There goes your working capital. For 30, 60 or 90 days, there will be nothing to show for it all but some intangible figures on a ledger page.

What is the actual value of your receivables? Which accounts will be paid? How many will default, and for how much? Nobody knows!

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protects your receivables at a reasonable cost. Your capital is safe. Your profits are assured when you ship.

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OFFICES IN PRINCIPAL CITIES OF
UNITED STATES AND CANADA

MEMO . . . for Busy Readers

"Minute Men" to Arbitrate VOLUNTEER corps of 7,000 business and professional "minute men" will serve in nation-wide effort to prevent industrial disputes from paralyzing defense activities. Men are members of National Panel of Arbitrators of American Arbitration Association, a non-profit organization maintaining in 1,700 cities tribunals or settling business controversies out of court.

Primary concern of effort will be a survey of the industries of strategically important localities and enlistment of business men with the 630 other trade groups using the arbitration method as standard means for settling intra-business disputes.

How important the Government regards the need for a swift and effective alternative to court action can be gauged from decision to include in all Army contracts of \$15,000 or less special provisions calling for three-man arbitration boards to decide all questions of fact whenever a disagreement arises between a business firm and military purchasing officials.

British Purchasing Board, which in the first nine months of 1940 spent \$78,000,000 for aeronautical materials, has been using a similar clause in its contracts with American firms.

Prison Goods' Ban Spreads PRISON-MADE goods, which Congress by an act of 1929 made subject to state laws even if in interstate commerce, now are regulated by legislation in 38 states.

Acting to remove prison labor from competition with free labor, 11 states have passed laws entirely prohibiting on the open market the sale or distribution of prison-made goods, including imports. These states are: Arizona, Colorado, Florida, Idaho, Kentucky, New Hampshire, New York, Ohio, Rhode Island, Tennessee and West Virginia. Although New Jersey, Pennsylvania and Wyoming have no legislation restricting the sale of all convict-made goods on the open market, present prison policies provide for a closed market.

With some exceptions, 20 states have general prohibitions on the open-market sale of prison-made goods—Arkansas, California, Connecticut, Georgia, Illinois, Indiana, Kansas, Louisiana, Maryland, Massachusetts, Michigan, Mississippi, Montana, Nebraska, North Carolina, Oklahoma, Oregon, Utah, Washington and Wisconsin.

Eleven states, including four of the preceding, specifically prohibit the sale or distribution of imported prison-made goods within their boundaries—Illinois, Indiana, Maine, Minnesota, Montana, New Hampshire, New Jersey, New Mexico, Pennsylvania, Texas and Virginia.

Seven states—Alabama, Delaware, Missouri, Nevada, South Carolina, Vermont and Wyoming—do not regulate the sale of prison products; and three states—Iowa and North and South Dakota—only require labeling and impose no other restrictions.

The state-use system, under which the sale of prison-goods is limited exclusively to state departments and agencies, has been adopted by 36 states. Most states permit use of prison labor on roads and many states permit prisoners to be used for construction and maintenance of public works.

How Christmas Funds Are Used

THREE hundred and sixty-five million dollars were distributed in December to more than 7,500,000 Christmas Club members by approximately 4,800 banking and savings institutions and other organizations. Total distribution for 1940 was about 4½ per cent in excess of 1939. Average distribution per member amounted to \$48.50 as against \$48.80 for 1939.

By report of Christmas Club, Inc., originator and sponsor of plan, fund was committed to following uses:

Christmas Purchases	32.4%	\$118,260,000
Permanent Savings	26.7%	95,655,000
Year End Bills	14.0%	51,000,000
Taxes	9.7%	36,400,000
Insurance Premiums	9.3%	34,000,000
Education, Travel and Charity	4.2%	15,330,000
Mortgage Interest	2.3%	8,400,000
Unclassified	1.4%	5,955,000
	100.0%	\$365,000,000

New York led the states with \$106,000,000.

Defense Cost Everybody's Bill

INDIVIDUAL citizen's defense bill for next five years will amount to a two per cent annual insurance premium on his \$350,000,000 property in the United States; will equal aggregate annual expenditures for beverages, both soft and alcoholic, tobacco, motion picture admissions, jewelry, radios, cosmetics, and furs.

Figuring five year cost of building and maintaining defense plant on average of about \$7,000,000,000 a year, charge would be approximately ten per cent of current national income.

Probable maintenance cost for expanded plant in scope now planned will amount to \$4,000,000,000 a year, a little more than a one per cent annual insurance premium on total assets of American people.

Amount is equivalent of country's annual bill for tobacco, beverages, and motion picture tickets, is substantially less than tourist travel expenditures, which in 1939 reached total of \$5,700,000,000.

Insurance premium calculation made by Northwestern National Life Insurance Company considers only dollar value of nation's physical assets, does not attempt to value freedom and right to live the American way of life, does not attempt to capitalize value of lives saved by adequate defense equipment and training.



REPUBLIC HOSE AND BELTING

Republic Mechanical Rubber Products have, in the past, provided industrial users of this type of equipment with every advantage of long, economical performance. Today, when such efficient service is a necessity rather than an advantage, these same industries are still relying on Republic quality. Whatever your specific

needs ... whether for Pneumatic Hose, Steam Hose, Transmission Belting, Conveyor Belting, or other types of Belting and Hose ... your nearest Republic Distributor is prepared to fill your requirements with dispatch. REPUBLIC RUBBER DIVISION OF LEE RUBBER AND TIRE CORPORATION, YOUNGSTOWN, OHIO.

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HOSE • BELTING • PACKING • MOLDED PRODUCTS

They Come to Look—Stay to Buy



Specialty food shops attract guests from Hollywood as well as market customers



Mr. Dahlhjelm enforces rule that vegetables must be picked on day of sale



A small zoo attracts children while their mothers shop



Old-fashioned freezer ice cream is one of the best paying specialties in the market

BECAUSE one man had a craving for fresh vegetables, Los Angeles today has chalked up an unusual success story in a collection of 77 outdoor shops and stalls that will top the \$2,000,000 mark in gross sales this year.

The man is Roger Dahlhjelm whose insistence on fresh vegetables brought about the Farmers' Public Market, where 10,500 automobiles have brought patrons in a single day. Unique in its successful violation of accepted merchandising principles, the open-air establishment covers about six and one-half acres of ground which no one else could find any use for.

Every effort is made to maintain an informal atmosphere. Many of the growers in the stalls wear overalls and straw sun hats. At the food stalls, patrons line up and order, then carry their paper plates to the tables set under umbrellas.

More than a dozen imitations of the market have been tried in Los Angeles, and even Dahlhjelm can't explain why they have not duplicated his success. There are two probable reasons, as he sees the matter. One is quality standards, the other psychology. The Farmers' Market stands far off the thoroughfares leading to it; no huge signs announce it. The informal, back-to-the-soil spirit they have so assiduously maintained leads customers to think they have made a great discovery, hence they pass it along to friends.

It is the quality standard, though, that makes for repeat visits. No produce may be kept overnight. Surplus is given to charitable institutions. No merchant has a lease—his tenancy is good for just 24 hours. Dahlhjelm's wanderings through the market are not for appearance alone. He reserves the right to throw out inferior

produce. Prices are on a high level, and no price cutting is tolerated.

Rentals are now on a percentage basis, ranging from two and one-half to ten per cent. Growers get preference, in rent and stall space. The tenants total their own grosses. Space is at such a premium that Dahlhjelm reasons that any errors in tenants' addition will be on the side of the management. Considering some of the stories behind the enterprises, his logic is apparent. One merchant who specializes in hard-to-get produce grossed \$155,000 last year. The ice cream man knew nothing about ice cream, but Dahlhjelm said there was a market for old-fashioned, churned-in-the-freezer ice cream. With a big freezer salvaged from the fire of an old hotel, Dahlhjelm's ice cream protégé opened shop. He'll net around \$10,000 this year.

—DON ROBERTS.

MAN TO MAN in the MONEY MARKETS

By CLIFFORD B. REEVES

Synthetic Boom Now Under Way

HEAVY expenditures in connection with the National Defense program are already beginning to result in substantial increases in the national income. In October, the last month for which figures are available, the national income was estimated at \$6,671,000,000. This was the biggest income that the American people had enjoyed for any month since October, 1930. November and December figures are expected to be even larger, and the indications now are that the national income for the full year 1940 will equal or exceed \$74,000,000,000. This is only \$4,500,000,000 less than the all time peak of 1929. And because the price level now is lower than it was then, the 1940 income, in terms of actual purchasing power, is entirely comparable with the 1929 total.

With defense spending steadily increasing, it now seems almost certain that the national income in 1941 and 1942 will set new all time records. If and when that occurs, it will be attended by wide publicity and probably great enthusiasm. Lest the country be deluded into the belief that its basic economic problems have therefore been solved, it might be well for everyone to remember that the type of "prosperity" now in prospect is entirely synthetic and forced-draft, because it is based upon an emergency rearmament program.

When Hitler "restored prosperity" to Germany through rearmament, responsible people in this country pointed out that such a program, though it brought temporary benefits, was entirely unsound. It is to be hoped that we show as much discernment in our own case. Our reasons for adopting such a program, being based on self-protection, are more moral than Hitler's, whose program was based on a desire for aggression. But moral considerations do not affect the economic results. If anything, Hitler's program has a better chance to pay out than ours, because the spoils of aggressive

war may pay for Germany's rearmament. Because America is not an aggressor, it will probably gain nothing to offset its armament costs.

If America's armament program and government deficits continue indefinitely, ultimate inflation seems inevitable. If the program stops, deflation and depression will undoubtedly occur. So, when hats are being thrown in the air in the next few years in enthusiasm over another "new era," let's all remember that, whichever course we take, there is a headache at the end of the road.

The Specter of Inflation

THE Secretary of the Treasury touched off a real inflation scare when he announced that he would ask Congress to raise the federal debt limit to \$60,000,000,000 or \$65,000,000,000. Stocks and commodities immediately zoomed. Talk of inflation, hoarding, and speculative buying for inventory filled the air.

After the first flurry of excited buying, more sober reflection led to the conclusion that there was no immediate danger of serious inflation, though perhaps very grave ultimate danger. There is no question that the combination of gold holdings, record-breaking excess bank reserves, low money rates and continued government spending provides a perfect setting for runaway inflation. But as an offset to this there exist a number of deflationary influences and control mechanisms which, if skillfully handled, should prevent any serious inflation for a long time, and perhaps forestall it indefinitely if government deficits are not continued too long.

This is not to say that no rise will occur in the general price level in the next few years. That is definitely to be expected. Such a movement, however, does not constitute inflation. Real inflation—the kind people fear—involves a serious and continuing depreciation in the value of currency. Under such circumstances, everyone

wants to convert his money into something tangible that will rise in value as the purchasing power of money continues to decline, until finally a sum of money that used to be sufficient to support a whole family for a week will no longer buy a single loaf of bread. Inflation is one of the most dreadful calamities that can befall a nation and, once it is really under way, it leads finally to national bankruptcy.

Among the deflationary influences that should tend to keep inflation in America in check are high tax rates, the loss of export business due to war conditions, and the existence of large surpluses of raw materials and labor.

High taxes on personal incomes tend to reduce the excess funds that in a period of prosperity are likely to bid securities up to inflated values. High corporation taxes check the rise in net earnings of corporations and likewise tend to prevent inflation of security values. The loss of export business because of war conditions also has a depressing effect on the total volume of business and on the price structure. And large amounts of surplus raw materials and idle labor will have to be absorbed before shortages develop.

In addition, a number of arbitrary controls can be exercised to check any serious inflationary tendencies. Reserve requirements of the banks can be stepped up to reduce the potential threat of credit inflation. Rediscount rates can also be increased to discourage excessive borrowing by making it more costly, although this has not worked any too well in the past.

More important is the fact that the Government, because of the many controls it exercises over the banking system and over security and commodity markets, is in a position to restrict the amount of borrowing that can be done. Speculation for the rise cannot get far without the use of borrowed money. Moreover, as the biggest customer of business, the Government can pretty much set its own prices. A great deal can also be done, during the period of the armament program, to offset inflationary tendencies by reducing drastically certain other types of government expenditures such as public works projects.

It would also help greatly if the Government would sell its future bond issues to individual investors, who would pay for them out of savings, rather than force them on the banks where they create fiat credit and add to the danger of inflation.

With enormous defense expenditures in prospect, the upward spiral is starting, and all possible ingenuity must be used in exercising controls to prevent the inflation that will otherwise certainly result from the

HOW TO SOLVE THIS COMMON PERSONNEL PROBLEM

WHAT to do for employees who need loans is a problem which has troubled many corporation executives. Perhaps the workers in your plant have their own credit union. Or your company may have worked out an employee loan plan. But in many cases employers have neither the means nor the experience to properly finance the emergency expenses of all their workers.

Where workers can borrow

Yet you realize that employees should be able to borrow when necessary—for the company's good, as well as their own peace of mind. Fortunately, the legislatures of most industrial states have recognized the social need of a source of emergency credit for working men and women. In the interests of these small borrowers these states have passed Small Loan Laws.

Loans repayable in installments

These laws make possible the modern family finance company like Household Finance. Here the responsible worker can borrow \$20 to \$300 in a simple, private transaction, regulated by law for his protection. No endorser is needed. *No wage assignment is taken.* Repayment is made in convenient monthly installments. Every day this plan helps hundreds of men and women of limited means to meet unexpected expenses.

The table below shows some typical loans and payment plans. The borrower may choose the payment plan which best fits his own needs and income. Installments include charges at the rate of 2½% per month (less in many territories). These charges are substantially below the maximum allowed by the Small Loan Laws of most states.

AMOUNT OF CASH LOAN ↓	AMOUNT PAID BACK EACH MONTH Including All Charges				
	2 mos. loan	6 mos. loan	12 mos. loan	16 mos. loan	20 mos. loan
\$ 20	\$ 10.38	\$ 3.63	\$ 1.95		
50	25.94	9.08	4.87		
100	51.88	18.15	9.75	\$ 7.66	\$ 6.41
150	77.82	27.23	14.62	11.49	9.62
200	103.77	36.31	19.50	15.32	12.83
250	129.71	45.39	24.37	19.15	16.04
300	155.65	54.46	29.25	22.98	19.24

Above payments figured at 2½% per month and based on prompt payment are in effect in Maryland and several other states. Due to local conditions, rates elsewhere vary slightly.

Contact with thousands of families has shown us that it is a further service to encourage and help our customers to manage their incomes intelligently. So our staff of home economists gives practical guidance in budgeting and household buymanship. Hundreds of schools and colleges use the booklets developed for this work.

If you employ or supervise men, you are invited to send the coupon for further information. You will be under no obligation.

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Address.....

City.....State.....

financial ledgerdomain of recent years. But no set of controls, however ingenious, can forestall inflation if government deficits continue indefinitely.

S.E.C. Improves Its Methods

THE promptness with which security registrations have been declared effective by the S.E.C. since the mandatory 20 day waiting period was abolished shows how unnecessary the old "paralysis period" really was. In recent weeks, the Commission has cleared a substantial number of issues within five to ten days from the date on which they were filed.

The elimination of unnecessary delay has been a great boon to issuing corporations and their underwriters. When the 20 day wait between filing and final public offering was required, many companies took refuge in private financing, because of their fear that market conditions might change so radically in 20 days as to make it impossible for them finally to sell their securities even after they had gone to the expense and trouble of registering them. Moreover, under the old method, a company was never sure of the terms it could finally obtain. With the hiatus between registration and offering now definitely shortened in many cases, it is expected that fewer companies will resort to private sale.

Further to facilitate registration procedure, the S.E.C. is now trying out a plan that enables corporations to file their registration statements with regional offices of the S.E.C., rather than at Washington. Complete registration facilities have been set up at the Commission's offices in Chicago and San Francisco. If the plan works well, it is expected that similar facilities will be provided at the Commission's other regional offices. One of the purposes of this move is to facilitate financing in connection with the national defense program.

Originally it was necessary for a San Francisco corporation to file its registration statement at the Washington office of the S.E.C. This meant that the corporation's officers and its attorneys had to shuttle back and forth across the continent for a period of many weeks. It also meant delay because various details that arose in the course of the registration procedure had to be cleared up by correspondence. The new method will obviate most of these delays and difficulties.

Contrary to popular opinion, most corporation executives and investment bankers have no basic objection to the Securities Act. They have, however, objected to many of the cumbersome methods by which the Act is

administered. The S.E.C. has apparently come to recognize this fact, as its action on regional registrations and the shortening of the registration period indicate.

It is also reported that the Commission itself, recognizing the need for further elimination of cumbersome procedures, is studying the entire Securities Act with the idea of recommending changes that will further simplify and facilitate registration procedure.

R.F.C. Puts Ceiling On Bank Interest

COMMERCIAL bankers throughout the country, who had been working hard to

perfect plans for putting bank resources back of the defense program, were greatly dismayed when Jesse Jones announced without warning that the Reconstruction Finance Corporation would finance defense contracts through loans at 1.5 per cent when a definite agreement exists for reimbursement by the Government. Mr. Jones also stated the R.F.C. would lend at rates not exceeding four per cent on any loans for defense work even when no agreement for reimbursement by the Government is involved.

Then he went a step farther and offered to refinance at such rates any existing defense loans.

Bankers felt that this was merely a method of dictating to them the maximum rates that they could charge on business of that type. They pointed out that an interest rate of 1.5 per cent was inadequate from the standpoint of a commercial bank, except in the case of the very best borrowers, because no actual government guarantee was involved. Mr. Jones, in his statement, referred to loans of this class as being comparable with "Government guaranteed obligations." The bankers, however, insist that no such "guarantee" exists, and that the bank takes a definite risk from the time the loan is made until the Government accepts the work.

They point out that, if a builder of a defense plant fails to meet specifications or fails in any other way to fulfill his contract, the Government does not have to pay. There were many experiences of this kind in the World War, and some cases are still in litigation after 20 years.

The Government is the sole judge of whether it will or will not pay, and its attitude in a case where a government agency held the loan might be something different from its attitude if the loan were held by a commercial bank.

The bankers also feel that the lending rates established by the R.F.C. will prevent smaller banks from par-

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What does this new-type paper mean to you? Just this: IF YOU HAVE BEEN BUYING HIGHEST QUALITY PRINTING, you now can buy *more* printing at the *same price* by specifying Trufect*, Kimfect or Multifect*!

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Seeing is believing — Ask your printer or paper merchant to show you samples of this unique paper, or write Kimberly-Clark for proofs of *printed results* heretofore obtainable only with high-cost printing papers. You'll agree, these new-type papers do most for the money! They are available through your paper merchant. If you prefer, inquire direct.

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For corner store or big corporation—whatever your figure problems may be—there's an up-to-the-minute Victor adding machine to give you the quick, accurate solution. At a price to fit your budget.

- VICTOR "straight" portable adding machines in three totaling capacities at \$47.50; \$55.00; and \$70.00. Your choice of 10-key or full keyboard.
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VICTOR

ADDING MACHINES

participating to any appreciable extent in defense lending. They contend that smaller banks are unable to make loans at such rates, regardless of the quality of the risk, simply because they must obtain a higher rate to meet their operating costs.

Bankers generally seemed to feel that the four per cent top placed on general loans to companies working on defense orders where there is no definite agreement for reimbursement by the Government, simply made no sense. On loans of this type, they maintain that each borrower should be given a rate that takes into account the corporation's credit standing.

Two per cent might be a proper rate in one case, whereas six per cent might be required in another. Why any corporation that has a government order should be entitled to borrow at four per cent from a bank—or from the R.F.C. either, for that matter—regardless of the credit risk involved, is something the bankers cannot understand.

Bankers were totally unprepared for the R.F.C. announcement. The possibility of establishing maximum rates had been discussed some time previously with the Defense Commission and with the Federal Reserve Board, and the idea had been abandoned.

The bankers felt that the action, coming after the banking community had done so much to cooperate with the Government in financing the defense program, was an unfair attempt to compete with them for defense loans or prevent them from earning reasonable rates of return on such business.

A. T. & T. Adopts Private Placement

IT was a sad blow to investment bankers when the American Telephone & Telegraph Company recently sold \$140,000,000 of its debentures privately, instead of through a public offering. And many institutional and individual investors throughout the country were disappointed that they had been given no opportunity to buy the A. T. & T. bonds, which have always been a great favorite with the general run of investors. The issue was one of the largest of recent years, and the largest ever to be sold by the private method.

The entire issue of \$140,000,000 was sold, without registration under the Securities Act, to 14 insurance companies.

This meant that each buyer's average purchase was \$10,000,000. Their actual purchases ranged from \$2,000,000 in the case of one company, to \$50,000,000 for another.

There was no criticism of A. T. & T. for the method it adopted to accomplish its financing. The general feeling was that the Company, which has always sought the widest possible distribution of its securities in the past and regarded public securities as a method of building public good will, was reluctant to adopt the private method of financing, but felt it would be passing up too many advantages if it failed to do so. It was reported that, aside from questions involved in registration under the Securities Act, the Company felt that private sale would avoid possible pressure for sale through competitive bidding, a method of financing which A. T. & T. does not believe is suited to its own situation.

Investment bankers hoped that the size and importance of this private deal would help to focus attention on the manner in which the Securities Act, because of the many difficulties and penalties it imposes, is resulting in more and more private financing that tends to concentrate prime investments in the hands of a few investing institutions, to the detriment of the general investing public.

The trend toward private sale, if allowed to continue, may ultimately lead to a substantial shrinkage in the country's facilities for the underwriting and distribution of securities. Although this might not be serious from the standpoint of those few companies which could continue to offer their securities privately, it would be calamitous for the average corporation that must depend upon investment banking machinery to obtain its capital.

Brokers Are Still Singing the Blues

BEFORE the election, there were rumors in the financial community that many brokerage houses would liquidate if the Republican candidate failed to win. It was also reported that many brokerage office leases, drawn early in 1940, included clauses permitting the tenants to cancel their leases in the event of another democratic victory.

However, brokers were delighted and surprised at the sudden increase in market volume in the week after election. But after the inflation scare wore off, the market went back into the doldrums, and brokers again succumbed to their former discouragement.

Even with the run-up in volume that followed the election, trading on the New York Stock Exchange for the whole month of November totalled less than 21,000,000 shares. Except for November, 1939, this was the poorest November for any year since 1921. And late in the month, the daily trad-

ing volume was again down to the 500,000—700,000 level. Prices were also weak, and at the close of November, the market was at the lowest level since last August.

For the first 11 months of 1940, trading volume on the Exchange has totalled only 189,000,000 shares, which is the smallest volume for any comparable period in the past 19 years. Moreover, the trend in recent years has been steadily downward. Since 1936, the volume for the first 11 months of each year compares as follows: 1936, 447,000,000 shares; 1937, 381,000,000; 1938, 269,000,000; 1939, 244,000,000.

Because of the failure of the post-election boom to sustain itself, many brokerage houses and investment dealers are expected to make further cuts in personnel and facilities. Some houses are already trying to find other employment for part of their personnel; some are expected to liquidate entirely; and others will probably effect mergers to achieve operating economies.

Job Veterans Take a Bow

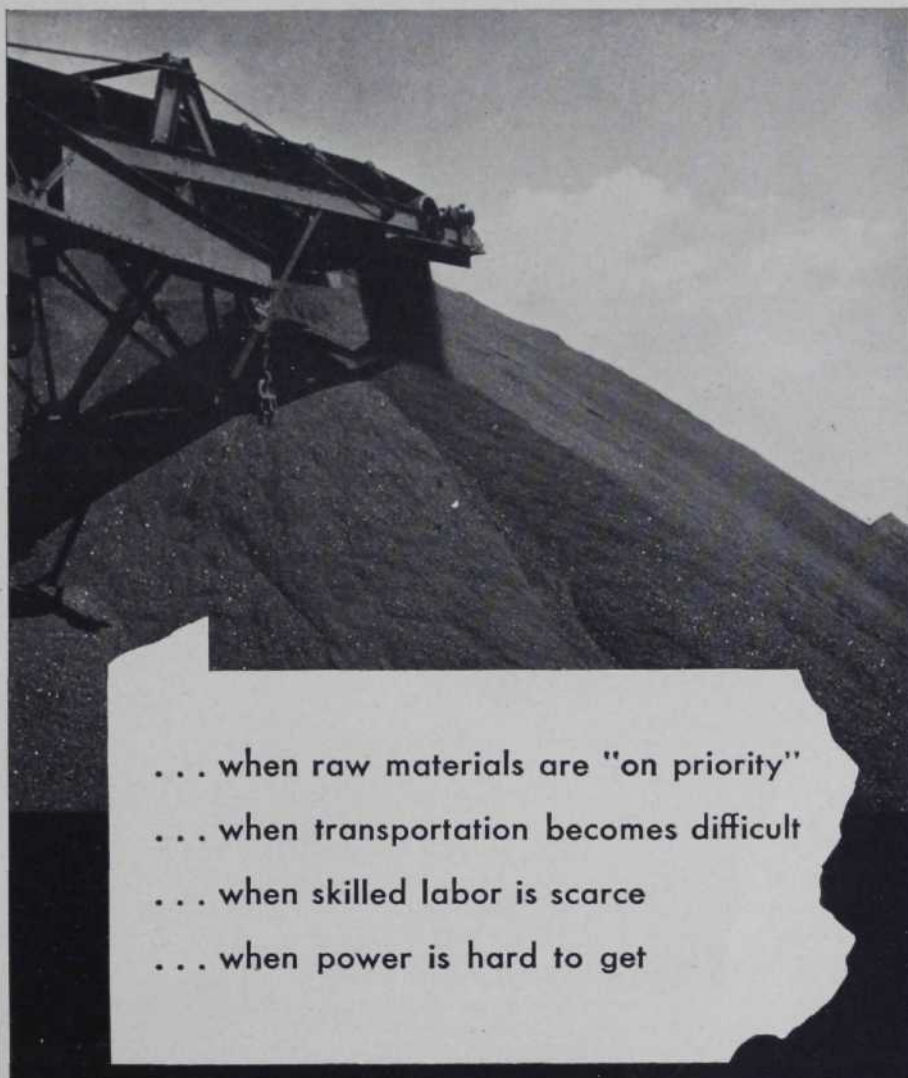
BELIEF of citizens that Sheboygan, Wis., is a good place to live, a good place to work, was publicly confirmed by honorary dinner Association of Commerce gave for city's workers with 25 or more years of employment by one concern. Of the thousand men and women eligible for recognition, 650 presented themselves at the ceremonies. Distinguished among guests were 23 men with individual records of more than 50 years with one company. One had served his firm 58 years. Representation by one company's workers included 160 men each with 25 years or better showing of job continuity.

Veteran workers were divided in two groups, "more than 50 years" and "more than 25 years." Higher service period was acknowledged with "gold" certificate, lower with "silver" certificate, awarded by authority of association's board of directors and signed by organization's president and secretary.

Occasion was observed with talks by community figures, music by Kohler band, and mass singing of patriotic songs. Principal speaker was Dr. Charles Copeland Smith of National Association of Manufacturers' staff. Distinction of event, in his words:

Only in America could such a meeting as this be held. When employer and employee can march together, each having done loyal and faithful service to the other, then America is safe, then I have no fears for America.

You'll be glad your plant is in Pennsylvania



... when raw materials are "on priority"
... when transportation becomes difficult
... when skilled labor is scarce
... when power is hard to get

Pennsylvania is the largest producer of the very minerals, metals and other materials which every manufacturing establishment may soon find hard to get. It has an unexcelled variety of methods of transportation to help you get those materials to your plant. It has one of the largest populations of skilled workmen. It has vast quantities of fuel and enormous "power pools" which are

accustomed to meeting heavy industrial demands.

If you are interested in locating a plant or a branch plant in the midst of all these natural advantages, the Department of Commerce of the Commonwealth of Pennsylvania will be glad to procure *specific* information applying to *your* company's requirements. Write, giving full information, to Harrisburg, Pa.

Pennsylvania

where your business can expand



ARTHUR H. JAMES, Governor

RICHARD P. BROWN, Secretary of Commerce

Utility Man Plywood



Plywood lined freight cars minimize moisture damage

AMONG those industrial frontiersmen who discover and produce more useful products for the consumer, provide more jobs for the workers and create additional wealth for the nation were a few ingenious persons who saw increasing possibilities for the use of Douglas fir plywood. By pooling their collective abilities they have increased production from 300,000 square feet a few years ago to more than 1,000,000,000 in 1940.

With increased production has come reduced cost to the consumer as indicated by the price of one-quarter inch panel which sold for 12 cents a square foot in 1921, but is now available at five cents or less.

Improved manufacturing methods and a vigorous trade promotion effort are largely responsible for the industry's rising sales volume. Among most helpful new manufacturing processes has been development of a synthetic resin-bonded panel that is completely waterproof. Douglas fir plywood made by this process is now widely used for permanent external construction purposes and in boat building. Experiments with a new electrical heating process are under way which give promise of decreasing by five-fold the bonding time required for thicker panels. If this method proves successful it will not only cut production costs, but will make practical the manufacture of thicker panels than those now in common use and make plywood more useful in the form of laminated arches, beams and trusses.

Douglas fir plywood was first manufactured in 1905 and used primarily for door panels. Today the greatest volume goes into construction as sheathing, interior walls and ceiling, sub-

(Continued on page 85)



Plywood skiffs are strong and light. Army has ordered 4,000. Each 12-foot boat holds 11 men and equipment



Greatest part of production is used for home construction. Large panels save time of workers—help reduce building costs



Barns and other farm buildings built with plywood are warmer and the broad panels practically eliminate dust and draft

Born in 1938 ... ready to pace a \$100,000,000 Industry in 1941!



STORES



OFFICES



FACTORIES

General Electric offers you G-E MAZDA "F" lamps from 6-watts to 100-watts.



The Startling Story of G-E MAZDA Fluorescent Lamps



... fastest growing of all the amazing children of Edison's first lamp

TODAY business in every size ... from corporation to corner store ... is finding advantages in correctly installed* G-E Fluorescent lighting.

Yet a little less than three years ago, General Electric introduced its first line of G-E MAZDA Fluorescent lamps.

Here is a new type of lamp that brought daylight ... much more light, urgently needed for easier, faster seeing ... 50% cooler light ... amazingly long life ... and almost unlimited opportunity for lighting fitted, even styled, to each particular job. It sold Fluorescent lighting overnight.

MAZDA Research and General Electric manufacturing facilities sped forward with the new

markets and new uses its latest product was creating. In 1938, only 3 sizes and 3 wattages were available to eager purchasers. Today, there are seven different sizes of G-E MAZDA F lamps ... from the new 6-watt lamp, only 9 inches long, to the jumbo 100-watt lamp, five feet long. And they may be had in daylight, in white, soft-white, and five attractive colors.

Today you also benefit by General Electric's popular policy of passing improvements and economies along to the user as they are made possible. The efficiency curve of these lamps has gone up steadily ... in some cases as much as 25%. Prices have come down. For example, in 1938, the 15-watt G-E MAZDA F lamp cost \$1.50. Now it sells for 95c.

So take advantage of G-E Fluorescent lighting today. Call your G-E MAZDA lamp distributor. He will explain to you the many advantages of the G-E plan below.

Before you buy any type of FLUORESCENT LIGHTING ask yourself these questions

- 1 Do the fixtures come equipped with G-E MAZDA Fluorescent Lamps, which give all the efficiencies and economies of MAZDA Research?
- 2 Are you getting a wide enough choice of fixtures so that your fluorescent lighting meets your INDIVIDUAL needs?
- 3 Is the performance of the fixture certified for best lighting results by Electrical Testing Laboratories?

To assure prospective purchasers of G-E MAZDA Fluorescent lamps Maximum Performance from this New Lighting

... a wider choice of new lighting fixtures ... lighting fitted to their exact needs, General Electric co-operates impartially with many manufacturers and does not make fixtures itself. General Electric recommends fixtures bearing the FLEUR-O-LIER or the RLM label. Fixtures carrying either label, when certified by Electrical Testing Laboratories to comply with exacting specifications,

assure the customer of satisfactory performance. The Fleur-O-Lier specifications are drawn by the MAZDA Fluorescent Lamp Manufacturers. Certification can be obtained by any manufacturer whose product meets the specifications, hence a wide choice of fixtures is available.

These fixtures are sold by G-E MAZDA lamp distributors everywhere.



G-E MAZDA "F" lamps are recommended for use only in equipment with high power factor, such as Certified FLEUR-O-LIERs, identified by this label, or RLM industrial fixtures.



*Ask your local electric service company or G-E MAZDA lamp distributor to help you choose the fixture best suited to your needs.

G-E MAZDA LAMPS
GENERAL

ELECTRIC

The Map of the Nation's Business

By FRANK GREENE

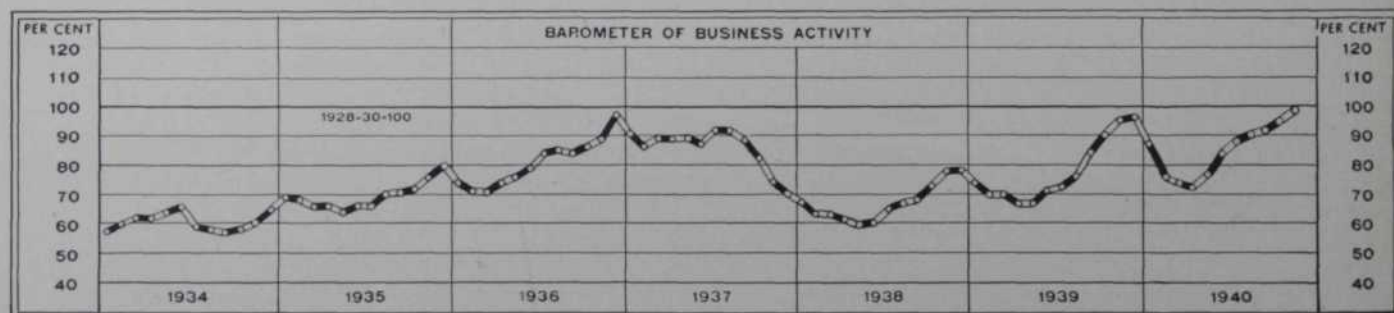


CAPACITY production of armament and related products stimulated all lines of industry and trade in November. Steel orders continued to exceed mill capacity while actual output was the greatest in history. With sales 30 per cent above November, 1939, automobile manufacture topped all records for the month while electricity production again passed previous peaks.

Railroad earnings improved steadily with carloadings holding above last year. Stock market values declined moderately but trading volume remained above November, 1939. Cantonment and home building kept lumber orders ahead of production, while heavy engineering awards reached a new high for November. Metal purchases continued heavy. Cotton and woolen mill activity was sustained at high levels.

Chain and mail order outlets reported outstanding gains, while all branches of retail trade responded to improved purchasing power. Wholesale food prices advanced to highest levels for nearly three years.

The Map reflects the improvement in trade distribution resulting largely from increased employment and pay rolls



Under the influence of heavy backlogs and capacity operations, due to the defense program, industrial activity forged ahead in November, with the Barometer reaching a new peak for the current movement



HIT...and miss!

Just hitting the nail on the head is no assurance of driving it true. The mere buying of air conditioning or refrigeration isn't the answer to any man's problem. He wants to be assured the installation he buys will *pay*.

So it's small wonder that business leaders everywhere endorse York's profit-minded engineering, the basic concept that every York job must profit the user.

Will Pay Out in First Year, Says **SKF**

A case in point is York air conditioning in the world-famous **SKF** bearing plants in North Philadelphia where elimination of dust and control of humidity have put an end to damage from

rust and dirt, provided working conditions that have speeded production, cut rejects 70 per cent and customer complaints 80 per cent. This installation is well on its way toward paying for itself in the first year of operation!

If this is the engineering approach you want on your problem, call "Headquarters" and give yourself the benefit of 56 years of experience gained in more than 150,000 *engineered* air conditioning and refrigeration installations.

York Ice Machinery Corporation, York, Penna. Branches and Distributors throughout the World.



YORK REFRIGERATION AND AIR CONDITIONING

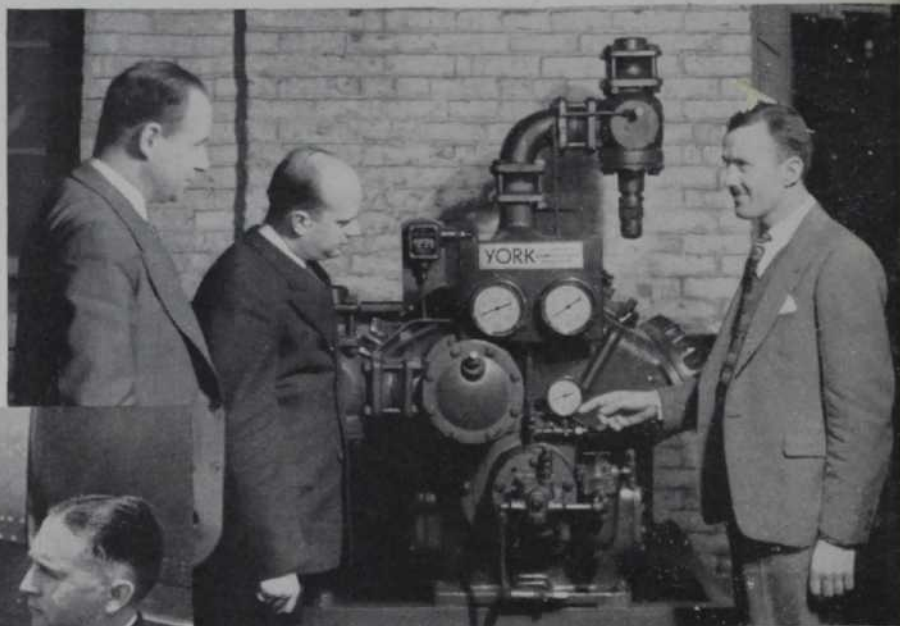
"Headquarters for Mechanical Cooling Since 1885"

A FEW OF THE MANY NATIONALLY-KNOWN USERS OF YORK EQUIPMENT—*Armour • A. & P. • Bethlehem Shipbuilding • Borden • Canada Dry • Coca-Cola • Curtiss-Wright • du Pont • Eastman Kodak • Firestone • Ford • General Baking • General Foods • General Mills • General Motors • Goodrich • Gulf Oil • Monsanto Chemical • Norton Company • Paramount Pictures • Pennsylvania R. R. • Procter and Gamble • SKF Industries • Shell Oil • Socony-Vacuum • Swift • Texas Company • United Fruit • Woolworth*



Harry T. Wright (right) and Warren V. Woody

Leaders in the March of Business



W. E. Barnum (left), A. C. Evans and V. T. Kartorie



W. A. Patterson (right)

W. E. BARNUM, manager of the air conditioning division of York Ice Machinery Company, successful bidders for the largest industrial air conditioning contract ever awarded as a single installation, from the Ford Motor Company. The equipment will go into Ford's new aviation engine plant at Dearborn which will be windowless and completely air conditioned.

HARRY T. WRIGHT of Chicago started selling insurance during his two-week vacation from a clerk's job with the Equitable Life Assurance Society in 1907. For the past 16 years his average annual production has been about \$1,285,000. He closed his 1939 year with a volume of \$1,502,000, written on 143 cases. Premiums were \$64,512. All his business is personally written. He was recently elected president of the National Association of Life Underwriters.

W. A. PATTERSON, president of United Air Lines, first air line company to put an employees' pension plan into force. It will supplement benefits under the Social Security Act and provides for purchase of retirement annuities from an insurance company by joint expenditures of employees and company. Ordinary employees will reach retirement age at 65, pilots at 60. The company now has more than 3,000 employees, 62 planes in service and 30 more on order.

JAMES H. MARKS of the Packard Motor Company, who is superintending the construction and equipment of his company's new plant for manufacture of 9,000 Rolls Royce aircraft engines. He joined Packard in 1916 as a construction superintendent and was largely responsible for rearrangement of the factory to build aviation engines during the war. Since then he has served as vice president in charge of manufacturing, supervised installation of the group bonus plan and a new system of production control. He has been head of the purchasing department since 1925. Before his association with Packard, he was draftsman at the University of Michigan where he started construction of the type buildings now existing there. He is an enthusiastic yachtsman and Lieutenant Commander of the Grosse Pointe Power Squadron.

HOMER FERGUSON, president of this country's largest private shipbuilding yard, the Newport News Shipbuilding & Dry Dock Company which now has \$465,000,000 worth of unfilled orders on its books in comparison to \$94,000,000 worth last June. Number of employees has increased from 9,765 last year to more than 13,000. Company now has under construction two new submerged ways, first of this type in any American private yard. They permit construction of ships on level, eliminate risk and expense of launching and will take largest type of naval vessel.



James H. Marks



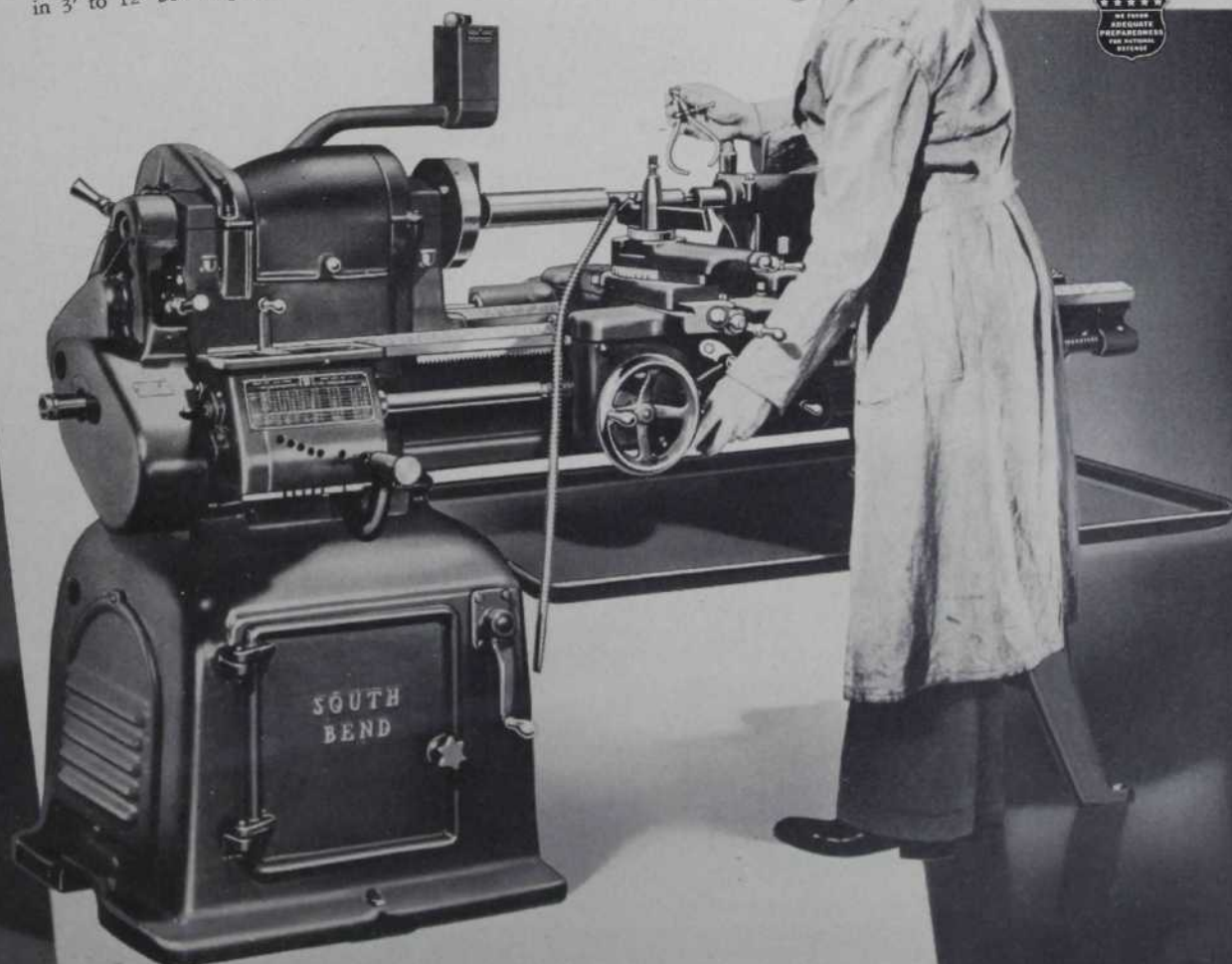
Homer Ferguson

THE *Precision* REQUIRED FOR MODERN INDUSTRY

South Bend Lathes are designed and built to provide the extreme precision required in modern industry. They are giving tool room accuracy on close-tolerance production work in hundreds of manufacturing plants throughout the United States. The smooth, vibration-free belt drive to the spindle permits finish turning or boring with such precision that subsequent grinding, honing or lapping operations can often be eliminated.

South Bend Lathes are made in 9", 10", 13", 14½" and 16" swing, in 3' to 12' bed lengths, in Motor Drive and Countershaft Drive.

SOUTH BEND LATHES



SOUTH BEND LATHE WORKS

LATHE BUILDERS SINCE 1906

531 E. Madison St., South Bend, Ind., U. S. A.



An Easier Way to Haul —And the Cost is Less!

IN 100 LINES OF BUSINESS IT'S BEING DONE WITH TRUCK-TRAILERS

IN CONGESTED TRAFFIC, in narrow alleys and in cramped quarters Truck-Trailers are more flexible and easier to handle than trucks of comparable capacity. The Truck-Trailer unit is hinged-in-the-middle; the truck turns at right angles to the Trailer it pulls. The Trailer wheels cut in and the entire unit gets into tight spots with amazing ease.

SAVINGS ARE IMPORTANT, TOO!

Ease of handling is only one Truck-Trailer advantage. Equally vital are the savings you make. Your investment is lower since you use a smaller truck to pull your load than you would require to carry the load. The smaller truck costs less to operate, your upkeep costs are lower and your replacement cost is less. Owners report savings of from 30% to 60%. Then, too, if you use a "shuttle" system—as so many do—you'll save still more because one truck can handle three or more Trailers. The truck will be almost constantly at work pulling first one and then another of the Trailers ready to be moved after being loaded or unloaded.

FACTS to prove the flexibility and the economy of Truck-Trailer operation are plentiful and will be sent to you upon request. Better still, a telephone call will bring a trained Fruehauf transportation engineer who will gladly analyze your haulage set-up without obligation.

World's Largest Builders of Truck-Trailers
FRUEHAUF TRAILER COMPANY • DETROIT
Sales and Service in Principal Cities



Highways are the fundamental arteries of transportation which serve every community. Most other means of transportation are dependent upon highway transport for the beginning and completion of the journey.



Home of "Engineered Transportation."

One of the four modern plants of the Fruehauf Trailer Company, world's largest builders of Truck-Trailers.

FRUEHAUF TRAILERS

"Engineered Transportation"

REG. U.S. PAT. OFF.

MORE FRUEHAUF TRAILERS ON THE ROAD THAN ANY OTHER MAKE

What Will We Use for Money?

(Continued from page 28)

than under the New Deal. Thus far the Senate Committee has advanced only to the stage of sending voluminous questionnaires to the government department and agencies concerned with monetary and banking matters and to banking associations. No aspect of monetary and banking policy has escaped attention in these questionnaires.

The question of a further extension of the President's powers over the gold content of the dollar is one of the few on which party lines have been drawn. The Republicans in Congress, in conformity with their party platform declaration and the position of their presidential candidate, are expected to oppose further extension. Congress was closely divided on the issue in July, 1939, when legislation was enacted extending the authority to June 30, 1941.

Arguments on devaluation

THE Administration then took the position that existence of the power gives the Government a desirable club in dealing with other countries. An extremist monetary group was urging, when the price level sagged before the war began, the use of the power in a further devaluation of the dollar with a view to promoting an upward movement. The President, however, has shown no disposition to reduce the gold content beyond the weight fixed in January, 1934. Those who have consistently favored a statutory gold content of the dollar, such as existed before 1934, believe that such a policy would enhance stability of world currencies. They point out that the existence of the President's power to revalue gold was responsible for rumors which caused disturbing movements of gold and capital to and from the United States during 1937. No good could result, they argue, from any attempt to keep pace with devaluations of other nations.

As to the further continuance of the Administration's powers over the Stabilization Fund, extended in July, 1939, to June 30, 1941, the Republicans have taken no position although there has been some sharp questioning of the recent uses of the fund. The Stabilization Fund has been virtually inactive since the outbreak of the European war until recent weeks. Previously it was quite generally agreed that the operations of this agency in conjunction with the stabilization funds of Great Britain, France and other European nations served as a makeshift substitute for the gold standard mechanism which formerly facilitated the maintenance of exchange relationships favorable to the transaction of business among citizens of different countries. However, it was felt that the United States fund had been more beneficial to other nations whose currencies were in need of support than to this country. With France and the Netherlands, two of the countries maintaining



stabilization funds, now under German domination and with the tripartite agreement practically inoperative, the future of the funds is problematical.

Any incentive for the United States to abolish its fund is lessened, however, by the fact that the diversion of the gold constituting the capital of the fund to the banking system would further increase excess reserves already at a dangerously high level. Use of the gold profit for current expenditures would mean disposition of the assets and add to inflationary dangers already present in the defense program.

The problems with respect to gold and silver are certain to come up for discussion in connection with the extension of the President's powers as well as in the consideration by the Wagner committee of all branches of monetary policy. Thus far questions involved in the continued flow of gold to the United States in excessive quantities have baffled the experts.

The increase in reserves of the banking system, accounted for chiefly by new gold stocks and to a lesser extent by purchases of silver, has provided an exceedingly difficult problem for the Federal Reserve authorities. Excessive banking reserves and some threats of loss in the value of monetary gold form the two most serious aspects of the gold problem confronting the United States.

Excess banking reserves, which have approached a \$7,000,000,000 total in recent months, form a base on which speculative credit might be pyramided to a tremendous figure. Inflationary possibilities as the defense program gets into full stride make it highly desirable that Congress in the new session shall consider means of holding the situation in check. The limited powers of the Federal Reserve authorities under the Banking Act of 1935 to change the former statutory requirements are asserted to be inadequate. The Board of Governors of the Federal Reserve system has called attention to possible dangers in several reports in the past two years. Whether the Board shall have blanket powers, whether present requirements shall be greatly increased by statute, coupled with authority to the Board to lower them but not to increase them further, or whether some other device shall be chosen, remains for determination.

Gold value may drop

SOME authorities fear a future shrinkage in value of the gold stocks of the United States, recently nearly five and one-half times the \$4,000,000,000 total prior to devaluation of the dollar in January, 1934. Eventually the United States will possess most of the stocks of the entire world if the inward flow continues. The totalitarian powers meanwhile threaten to continue the use of exchange controls and barter and clearing agreements which, they profess, require no gold in the settlement of international trade balances.

Chaotic conditions in foreign countries are recognized as the primary cause of the inward movement of gold which has continued in large volume since 1934. The imports of gold have formed the medium, in part, for the set-



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More and more, modern dictation calls for the ease and efficiency that can only be assured by a truly modern dictation-reporting system. That is why more and more modern dictators are turning to the ease, speed, accuracy and simplicity offered by . . .



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If you've seen previous messages in this series, you already know what makes such priceless performance possible. Such as: notes in plain English letters; never-changing hundred per cent readability of those notes; noiseless touch opera-

tion that conserves energy and promotes comfort; a speed reserve greater than the operator needs. And last, but not least: "interchangeable notes" . . . an advantage whereby several typists can transcribe while one Stenotypist takes.

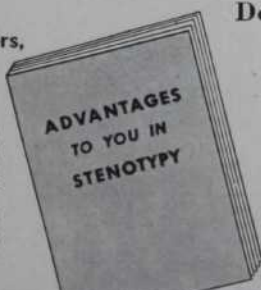
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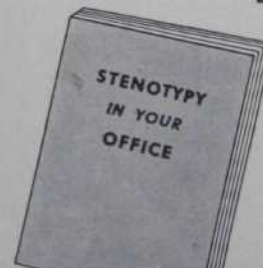
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So quiet—and not a
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It's really "sound-
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hear a word



New Doorless Phone Booth

Here's the modern telephone booth for hotels, banks, stores, and other public places. Patented acoustic construction gives complete privacy and freedom from noise without doors. Ample room. Easy and comfortable to use. Always airy and clean. No maintenance. Hundreds in successful use. Get full details and prices of this and other models.

Mail Coupon for Free Booklet

Burgess Battery Company, Acoustic Division
Dept. NB, 500 W. Huron St., Chicago
Please send Free booklet describing Burgess
Doorless Acousti-Booth and how it makes tele-
phoning easy in noisy places.

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IDEAL TERRITORY FOR PLANT LOCATION

Your plant relocation problem, or that of establishing a branch plant or warehouse, will be simplified by placing the question in the hands of our Industrial Engineers and Technologists for analysis.

Facts, and not opinions, will be presented to prove why a certain area or locality in Missouri Pacific Lines territory in the Central West and Southwest would best meet all of your requirements.



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Director of Industrial Development
MISSOURI PACIFIC LINES
St. Louis, Mo.

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tlement of trade balances, but, in larger part, for the transfer of capital to the United States. Under the former automatic mechanism of the gold standard, the movement might have been checked through effects of gold imports upon the credit system and price levels. While critics of the Administration have attempted to fasten responsibility for the continued flow of gold upon the increase in the price from \$20.67 to \$35 an ounce—which was the effect of devaluation of the dollar—available evidence suggests that the price increase has had little direct influence other than through a substantial stimulus to the production of new gold. The increased production of gold, serving to swell domestic production as well as totals available for shipment to this country, forms one of the questioned effects of the devaluation of the dollar.

The gold, to which the Treasury holds title, costs the taxpayers nothing inasmuch as it is paid for by checks drawn on accounts in Federal Reserve banks replenished simultaneously by the deposit of gold certificates based on the gold. Because of the deposit of these certificates, which are in effect a 100 per cent mortgage on the actual gold, there is relatively little gold which might be converted into currency or credit and spent.

While a large part of the gold is held at Fort Knox and none is allowed to circulate as currency, it nevertheless forms a base for the monetary system and is supposed to have a psychological value in preserving confidence. The

movement for a return to the use of currency redeemable in gold or gold certificates is gaining strength on the theory that something more than knowledge of an invisible store of gold is required to maintain its value in the face of the extensive use of paper currencies in other countries whose monetary systems are not dependent upon any metal.

Criticism of silver program

SILVER policies under the Roosevelt Administration form a phase of monetary policy which now has few defenders except those eager to continue a subsidy to the producing industry. There have been some indications that the Administration will accept a curtailment of the silver program in accordance with such recommendations as may come from the Wagner committee.

The immense quantities of domestic silver which the Treasury has bought represent no direct cost to the taxpayers. The silver is paid for by checks drawn on accounts replenished by the deposit of silver certificates based on a portion of the metal. The remaining portion is available for the issuance of additional certificates which, if issued, would represent a "write-up" profit. The monetary value of silver, however, is a fiction maintained by statute and the amount of actual and potential silver currency in excess of the world market price forms an inflation of the currency which might just as easily be accomplished by the printing press method. The silver bullion

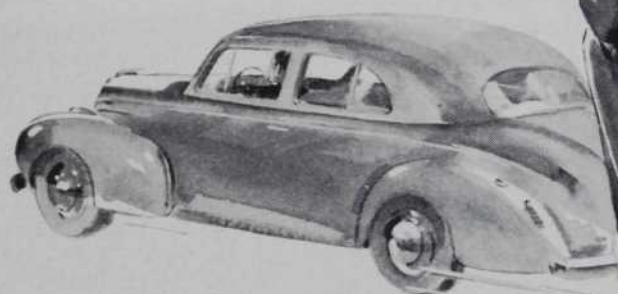
Defense industry is for defense only



**Irving S. Olds, Chairman
United States Steel
Corporation**

"The sole purpose of the expenditure of these vast sums by the federal Government is to make this country reasonably safe against attack. I am confident that the Congress has not sanctioned the staggering defense appropriations of recent months in an endeavor to set the Government up in competition with private industry, when the international situation has again become normal. That would be state socialism on a broad front and the probable death of the system of free private enterprise which has made this country the envy of the industrial world."

When the young driver "solos"



When there were three candles on his cake he sat on your lap and held the wheel.

He used to shout, "Go fast, Daddy"—and lean on the horn for all he was worth.

When he got old enough to "reach" you even let him "steer"—when no one was coming.

But you were along to guard, to judge, to take over . . .

Now, that boy is ready for automobile "soloing". Or maybe it's that girl.

When a youngster steps into your business, you expect to train him.

Is it any different when a youngster steps into your car—to drive?

You expect a boy to learn to skate, play football and ride a bike on his own hook.

He can learn to drive a car through trial-and-error methods. But those trials are dangerous and those errors can be costly.

A boy must be physically able to drive and mechanically alert enough to drive before he can get a driver's license in his home city.

There are many good ways to teach the boy to drive. Parents who drive well and have a little patience can be good instructors.

Often, a third person can teach better than the parent—a friend who is an expert, or perhaps your automobile dealer.

In many cities, modern schools of driving are turning out expert graduates. Many thoughtful parents have found these schools the ideal way to teach good driving to children.

It is not the province of this page to go further into such details as getting a driver's license.

Our object is to write about the moral responsibility and care which can never be put in rule books.

A careful-driving father is the best example for a starting-to-drive son.

Beyond how to start, stop, shift gears

and park, the parent has certain driving intangibles to get across to his boy:

—that having the right-of-way doesn't always mean having the "right;"

—that trucks take up more room than coupes;

—that bright lights at night distort easy daytime roads;

—that the itch to go fast isn't the sign of good drivers;

—that overcrowding causes many accidents—when eight youngsters are to go, two cars should go.

If you study your son (or daughter) at the wheel, you will be better able to judge how soon he is capable of taking that wheel on his own.

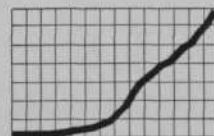
We believe, in this motoring age, teaching "Teensters" the Facts of Driving is almost as important as teaching them the Facts of Life.

* * *

Ask the Lumbermens agent in your city, or write our home office in Chicago, for a copy of "Why Ask for an Accident?", a new booklet containing latest safety information.

No Matter Who Drives Take This Worry Off Your Mind—

"If anything happens how will I pay?"



FOLLOW THE CURVE OF CONFIDENCE

Growth of Lumbermens policyholders since 1912, the year of our founding.

The answer is, "Good insurance will pay."

Lumbermens is good automobile insurance. It is pocketbook and legal counselor. It pays the costs, if the other fellow wins. It makes good the property, if you are adjudged to have damaged it. It offers the most complete, careful coverage that has been devised to date.

Lumbermens is low cost insurance, too—as reasonable as is commensurate with safe coverage. Lumbermens record of dividends paid back is one of the highest in the business.

Lumbermens sponsors such important public safety measures as the "Not Over 50" Club for the purpose of helping make automobile accidents happen less often.

Lumbermens is the "greatest name in automobile casualty insurance" with agents located in every state and throughout Canada. There is a Lumbermens agent near you.

John H. Kempfer
PRESIDENT

Lumbermens

MUTUAL CASUALTY COMPANY

JAMES S. KEMPER, President Home Office: Mutual Insurance Building, Chicago
Operating in New York State as (American) Lumbermens Mutual Casualty Co. of Illinois



held at West Point as security for currency would bring, if it could be placed on the market without a great break in the current price, only a trifle more than one-fourth of the face value of the silver certificates.

The objectives of the silver purchase program originally were to broaden the metallic base of the currency system, to encourage a greater use of silver in monetary systems of the world, to stabilize market prices at a higher level, to advance commodity prices through an expansion of currency, and to promote trade with the Orient. Because of the great increase in gold stocks, the broadening of the metallic base of the currency system has been futile. The high price paid by the United States has affected adversely economic conditions

in nations which used silver as currency and necessitated reorganizations in their monetary systems. World market prices are lower than at the beginning of the silver purchase program. Silver purchases have had no effect on commodity prices. Trade with the Orient has been injured.

Numerous other problems in the monetary sphere require the attention of the Administration and Congress.

The question of the structure of the mechanism for monetary management has many ramifications.

It involves the present dual authority of the Federal Reserve system and the Treasury, the former having to do with control of credit and the issuance of Federal Reserve currency and the latter with gold and silver and monetary poli-

cies in the international field.

The increase in the powers of the Treasury, a governmental department subject to political influence, at the expense of the Federal Reserve system, an agency designed to have a greater degree of independence, is consistent with the movement toward complete governmental control of money as manifested in numerous pending bills for a federal monetary authority, a government-owned central bank or government-owned Federal Reserve banks. This tendency toward domination of central banking by political agencies as against the former insistence upon independence therefrom is world-wide. It fits into the pattern of economic planning, often of doubtful soundness, which has received an impetus as part of efforts in all countries to solve serious economic problems of recent years.

What monetary objectives

COUPLED with questions relative to the form of mechanism are controversies over proper objectives to govern monetary management. The Federal Reserve authorities have opposed the price stabilization criterion which was used in monetary experiments during the early part of the New Deal and which continues to be put forward in various bills pending in Congress and urged by some agricultural and radical groups. In the judgment of the Federal Reserve authorities, whose policy tends to represent that of all branches of the Administration at present, monetary actions together with various other governmental activities should be directed toward attainment of economic stability rather than price stability.

A policy of extreme monetary ease, by which is meant the availability of an abundance of credit at low interest rates, has helped to facilitate the financing of Treasury deficits but has been injurious to endowed institutions, insurance companies and other institutions and individuals dependent upon income from investments. The tremendous imports of gold and the resultant excess banking reserves have been a primary factor in the attainment of easy money. Monetary policies under the New Deal also have contributed to that end. There are now signs of a more serious questioning of the supposed benefits of the easy or "cheap" money policy.

While these various issues affecting the domestic economy call for early consideration by Congress, always present is the specter of a future world economy in which exchange controls and barter and clearing agreements of the totalitarian powers tend to destroy the usefulness of the type of gold standard now maintained by the United States.

Scarcely anyone envisions a return to the old form of international gold standard under which price levels, interest rates and the volume of currency were subject to regulation through the movement of gold among nations. Gold nevertheless should continue to rank foremost among standards of payment and media of exchange. The United States, by reason of its ownership of two-thirds of the world's gold, necessarily must try to preserve its value as a medium of ex-



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READY-MADE STEEL BUILDINGS

In days instead of weeks you can permanently house space needed for more production or storage—in small units or large—units easily taken down and re-located with full salvage. Look into this 25-year old economy-working development NOW.

**BUILD OR
EXPAND YOUR
PLANT IN
A HURRY!**

**INSTALL
IN DAYS
INSTEAD OF
WEEKS!**

**READILY
INSULATED—
HEATED OR AIR-
CONDITIONED!**

**SIZES 4'x6'
TO 100'—ANY
LENGTH—ROUND
OR GABLE ROOF**

**LESS
INVESTMENT
—QUICKER
CHARGE-OFF!**

With this 8200 H.P. recycling plant at Villa Platte, La., Continental Oil Company recovers gasoline from gas, then pumps the gas back into the oil sand to maintain gas pressure to produce more oil



Above, the gasoline house, another of several Butler Steel Buildings housing the world's largest recycling plant.



Above—Butler Airplane Hangar typical of many in use. Below—Butler Truck Transport Freight House.



Below—Interior of lined and heated Railway Fruit Handling Depot.



FREE! Send Today for the Butler Book of Steel Buildings showing a hundred different installations in a score of industries. An outline of your requirements will set Butler engineers to tailor-measuring plans to fit and figures to save 3 ways.

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SALES OFFICES IN PRINCIPAL CITIES



At right—Truck Garage at large Army Depot.
Below—Insulated Machine Shop at River-Rail Elevator.



Below—Restaurant—typical of Butler Buildings for Wayside and Drive-in enterprises.



Strikingly Beautiful Double Steel Wall Boulevard Buildings

change for the settlement of international trade balances.

Future action in the international realm, now difficult to forecast, will be influenced by the outcome of the European war and the nature of ultimate economic adjustments. Attainment of some form of stabilization of world currencies is one of the essentials for maintenance of the advances which have marked the progress of civilization over the centuries.

Don't Bite Off More Than You Can Chew

(Continued from page 23)

Theater men will tell you that the average chorus girl today is a better all-round dancer than the top flight stars of yesteryear, and that many of the stars of today are girls who were positively surprised when stardom came to them. They set out to master an art, and finally became so good that they stood out among others, making it look as easy as Hal Chase or Napoleon Lajoie fielding a pop fly. When such girls are given better parts, their minds are never troubled by the routines they have mastered. These have become second nature. All their energy and concentration is free for application to the bigger job.

One job mastered at a time

VICTOR Cutter used this process consciously to get himself ahead in the great United Fruit Company, and woke up one day to find himself its president. A cautious New Englander, he even carried it a step farther. He not only mastered each job that was given him but, to be sure it would be well done in event he fell ill, he then trained his assistant to do it as well or better. The result was that, whenever a new job or an emergency cropped up, Cutter was not only available but the logical man to do it. He could be depended on not to bite off more than he could chew.

It may be said that most of the incidents I have cited refer to unusually able men. Well, let's take a big average group. It is made up of several hundred salesmen in a great national corporation selling a building specialty. Trade-Ways, Inc., a sales training and merchandising counsel firm, was employed to make a detailed study of the methods these salesmen used.

A vast amount of information was obtained, but the most startling fact uncovered was that the men making the most money for the company and themselves were those with the smallest number of prospects. Conversely, the men with the most prospects and largest territories were just getting by, and the job turnover was highest in this group. The men not biting off more than they could chew earned more and therefore stuck to their jobs, and earned more the second year, still more the third. After that about the only turnover was due to death, better jobs or going into business for themselves.

GOOD BUSINESS NEWS

OPEN ACCOUNT FINANCING ELIMINATES MONTHS OF DELAY

*Study Shows Receivables Most Satisfactory
Source of Working Capital*

A review of the methods of financing used over five years led C. J. BEEKMAN*, treasurer of the INTERSTATE CORPORATION*, to rely mainly on Commercial Credit Company's OPEN ACCOUNT service for current financing.

In a statement of interest to fiscal officers, Mr. Beekman says: "With respect to the time factor in arranging for financing, it is important to note that one source of current financing required about sixty days to consummate. Another required between three and four months. This involved registration with the S.E.C., and all the problems incident to the floating of securities for sale to the public.

"Against these two experiences is the one in which we called in Commercial Credit Company to arrange for current financing. This was consummated in about *two weeks*.

"There is little doubt but that the question of time necessary to arrange proper financing plays a vital part in business . . . Commercial Credit Company is to be complimented on its ability to make a practical survey of the needs of a business and arrive at a practical working arrangement with respect to its financial requirements."

Our resources, available for capital loans or current financing, include \$63,000,000 of capital and \$30,000,000 of long-time money. We provide cash against inventory or receivables, in *any* needed amount, at a fixed rate over a specified period. The only limit is the amount of actual business you can do. If interested in getting further information, write for "CAPITAL at WORK", and "COMPARATIVE COSTS OF FINANCING". Address Dept. NB.

**A fictitious name but the facts and figures taken from our files can be verified.*

COMMERCIAL CREDIT COMPANY

"Non-Notification" Open Account Financing

BALTIMORE

BOSTON NEW YORK CHICAGO SAN FRANCISCO LOS ANGELES PORTLAND, ORE.

CAPITAL AND SURPLUS MORE THAN \$60,000,000

Gleanings from the Markets

A Word About Runaway Prices . . .

Buyers' Pledge . . . Farmers' Auctions

As a war stores purchaser Uncle Sam is a bull in the market place. When it became known some months ago that large orders would be placed to supply a great conscript army it was only natural that talk should turn to higher prices. But Harriet Elliott, consumer adviser on the National Defense Commission, was worried by it and called a meeting of retailers in Washington to do something about this talk.

At that meeting the chief economist of the Commission's consumer division was just a bit menacing in his warning that those responsible for out-of-line prices would be subject to track-down and crack-down.

Retailers are rather sensitive on this score. They insist that price levels are not of their making; when prices go up the retailer is merely the bearer of bad tidings to the consumer.

Nevertheless the retail trades will do what they can to resist the expected pressure of higher prices from the direction of the producers.

The National Retail Dry Goods Association acted to enlist its 5,700 department and specialty store members in using their influence to prevent unjustified price increases.

A Buyers' Pledge was adopted, and according to Lew Hahn, general manager of the Association, some 10,000 store buyers have signed up as follows:

1. I will vigorously resist any price advances in the wholesale market which seem to me without justification.
2. I will promptly report to my superiors in the store any price increase which seems unreasonable.
3. I will report efforts by manufacturers and their salesmen to stampede me into buying unusual quantities by talk of shortage.
4. I will not speculate in merchandise.
5. I will not place "blank check" orders but will insist on the quotation of a firm price.
6. I will instruct my sales people not to talk to their customers about threatened shortages and forbid them to urge consumers to "Buy now before prices go up."

Although Mr. Hahn grants that manufacturers should not be criticized strongly for accepting a change of circumstances seemingly calculated to give them a sellers' market, he believes both producer and retailer are likely to assume unconsciously that price increases will become inevitable and therefore start at once to anticipate them. He cites such phrasing as this in letters from manufacturers: "We are trying our best to take care of our regular customers and also do our part for the Government."

Speculation on war prices seems to be based on the assumption that 1914-18 will be repeated. But that is scarcely possible since the years immediately preceding the earlier struggle were times of normal production and there was no great surplus in goods such as now gluts the American markets.



The Domestic Distribution Department Committee of the National Chamber studied this question recently and issued a report setting forth its conclusion that no shortage of consumer's goods needed by the Government exists now or is likely to be experienced soon. "All the evidence that can be obtained concerning development of present defense plans goes to show that civilians will not be required either to forego their usual goods and services or to pay higher prices because of defense requirements for consumers' goods," says the Committee.

Present production of men's shoes, for instance, is running approximately 1,000,000,000 pairs a year, with capacity for 20 per cent more if needed. Government deliveries for the Army and Navy during 14 months of the most intense World War buying totaled 30,700,000 pairs.

This year's carry-over of 12,000,000 bales of cotton for which a market is desperately being sought insures that there will be no shortage of that raw material. And the excess productive capacity in all basic agricultural food products is so well known that any prospect of price inflation in that direction is very slender.

Fear in Washington of runaway commodity prices inspired by business greed are as illogical as improbable. As the Domestic Distribution Committee expresses it:

Business men are no less concerned than consumers about the behavior of prices. Higher prices give rise to sales resistance from consumers, while competition for available sales brings higher costs. Profits, meager at best, vanish and often turn to losses.

The Administration has been trying,

through a long series of legislative and manipulative devices to lift prices, particularly of agricultural commodities. That was the purpose of the Surplus Commodities Corporation and of the whole A.A.A. policy. Now that there is a prospect that war buying might tend to raise price levels naturally, it would seem that such a trend should be welcomed. But there is little likelihood of its developing immediately, if at all. If it does, this is a case where nature will have to take its course. Official planning will probably be powerless to avoid the consequences of a chain of actions initiated by Government itself.

In the meantime economists are more concerned with another sort of inflation—that portended by continued deficit Government financing.

Local auction markets for farm products are becoming a rural American institution. An example of this movement is the Flemington (N.J.) Egg and Poultry Co-operative Auction Market which a short time ago celebrated its tenth anniversary. From a very humble and informal beginning in 1930 it has grown to occupy a handsome main building and has overflowed into three other buildings. Annual sales total about \$2,000,000. In ten years the cooperative has sold at auction \$11,000,000 worth of poultry and eggs for Hunterdon County farmers. They have met their marketing problem without going to Washington for help.

In Missouri, in the past few years, farm auction sales have become regular weekly events in many small towns. They are conducted by private auctioneers who charge a three per cent commission on all sales. Any commodity will be sold but livestock is the principal item. Local farmers buy and sell, while buyers from city stockyards are regular purchasers. The auction affords a ready market for quick sales in small lots. Owners of fat cattle or hogs in quantities may do better by shipping to the nearest city market but "non-topper" or thin stock generally brings a better net price at the local auction, according to a cattleman.

Instalment automobile purchasers of General Motors cars who may be drafted for the Army will be relieved of their ob-



ligation under a plan adopted by the General Motors Acceptance Corporation. The company will repurchase a soldier's investment in his car, deducting a charge of three per cent for each month of use to cover depreciation from the original purchase price. The repurchase is not in cash but in the form of a credit certificate which can be applied to the purchase of another car at a later date.

—FRED DEARMOND

Reflected Glory Makes Sales

TO suggest that a young woman save money by buying a second hand dress would be to insult her. But to present her as a prize a dress that Claudette Colbert wore in "Arise, My Love" is to afford her a thrill.

This is a bit of feminine psychology that a radio advertiser is applying to the sale of its product. For the best testimonial letter, an item of apparel glorified by some Hollywood star is given away every two weeks. Thanks to this program, many a lucky maid will be able to boast the ownership of such treasures as Madeleine Carroll's handbag or Paul-ette Goddard's hat.

Heroine worship is wonderful. There is the instance of the Illinois club woman who entertained the First Lady overnight recently and later described to a newspaper the thrill she received from sleeping the following night between the same sheets that her honored guest had used.

Utility Man Plywood

(Continued from page 72)

flooring and cabinets. Large quantities are also used for temporary shelters around building operations and for forming smooth concrete jobs. In addition it has found practical application for freight car linings, packing cases, tennis tables, store fixtures, tobacco hogsheads, and has a wide acceptance in the furniture, automotive and industrial fields. The waterproof or exterior type is extensively used for boats, outdoor signs, siding and farm buildings.

Won Association award

IN addition to the enterprise exhibited in improving their manufacturing technique, the producers also cooperated to revitalize their trade association in 1938 and a year later won the American Trade Association Executives' highest award for outstanding achievement.

Stepping stones in their path to substantial reward were: development of standardized grades in cooperation with the U. S. Bureau of Standards and an inspection service which safeguards the consumer; a widespread advertising and publicity campaign; education of salesmen and dealers on the merits of their product; research and tests to develop a fund of engineering data; market studies as a basis for selling campaigns; and the employment of technically trained field men to aid prospective plywood users.

The result of this concerted effort was an 80 per cent increase in average weekly sales in 1939 over those of the previous year.



GET ready to handle crowds when you dress up the interior of your place of business! Whether it's a restaurant, a hotel, a theatre, or a store, one of the quickest ways to get it mobbed with customers is to make its interior attractive, modern and eye-catching. People naturally prefer to patronize a place that is smart and good-looking.

How do you get started on a plan to make your interior modern and appealing? First, mail the coupon today for our free book of

pictures showing what other businesses of all kinds have done. It is full of ideas for using the glamor of Pittsburgh Glass to dress up interiors. And second, call in a design expert. Interiors are his business. Let him show you the possibilities. If you need help in getting in touch with a qualified interior designer or architect, we will be glad to assist you. Pittsburgh Glass Products are available through leading glass jobbers and mirror manufacturers, as well as our own branches.

Look what Glass can do

to dress up a restaurant! This is the S. & W. Cafeteria in Knoxville, Tenn. The use of Pittsburgh Mirrors to cover almost one whole wall of the restaurant makes the room seem twice as big, and gives it the atmosphere of smartness that attracts profitable business. Send the coupon for more ideas on how to use Pittsburgh Glass in commercial interiors.



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Please send me, without obligation, your free, illustrated book on the use of Pittsburgh Glass in commercial interiors.

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UNFAVORABLE POSTURE

Causes strain on the spine, results in the formation of permanent curves, and is a source of chronic fatigue, headache, and other ailments. It is a source of chronic fatigue, headache, and other ailments. It is a source of chronic fatigue, headache, and other ailments.

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See #
WOODSTOCK
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Clarity Should Begin at Home

(Continued from page 17)

doubtedly would lead to a most spirited and informative debate. Interest would not be diverted by the logrolling and quibbling which inevitably accompany discussion as to the allocation of funds to the various spending units. The job would be a determination of the total aggregate expenditures of the Government.

After Congress fixed the total amount of expenditures, it would be the duty of the existing committees to allocate the total among the different spending units, always, however, with the knowledge that the aggregate of the individual appropriations could not exceed the amount previously determined by Congress.

This proposal has had the support of competent outside authorities and many leaders of Congress. I believe our affiliated organizations, business men and citizens generally, can render a real public service by endorsing this proposal to their Senators and Representatives.

Budget system is required

IT SHOULD not be necessary to argue at any length the desirability of reinstating the budget system. The time has come in America when we must economize whether we like it or not. The outstanding record made by the Budget Director when given full authority with proper coordination would seem to be conclusive as to the desirability of this move. It is possible that the survey of non-defense expenditures should be conducted under the supervision of the Budget Director.

So far as our preparedness program is concerned, it seems to me there are two essentials:

First, a reexamination of the national and international policies to support which our armaments are being built. Such an examination should be made by a congressional committee with full authority to bring to bear upon its conclusions the testimony of the most competent authorities within the United States.

Second, our fiscal situation demands economy at every point. Whether it be in the voting of appropriations or in the placing of orders, no person in authority should ever lose sight of the fact that economy in expenditures is vitally important.

Just now, business is being stimulated by orders for Army and Navy supplies. But every business man knows that the spurt in business coming from this program does not represent sound prosperity.

Armament production disorganizes industry and workers. It will raise many problems when our factories return to the job of making things that people need and can use.

I suggest a review of the present defense program because it is essential that we do not repeat the mistakes which we made in the World War.

I should like to recall to you a few of the things we did at that time.

In less than 15 months, we spent \$4,-

000,000,000 in the Ordnance Department alone, for guns and ammunition—a sum equal to the entire cost of the War between the States—and yet, only 133 guns and 600 shells of one single caliber reached France in time for use at the front. I checked these figures with General Dawes, who had charge of procurement for the A.E.F. in France. He said he saw only four American-made guns, all naval guns, and that, so far as he knew, no American-made shell was fired in France in the entire war.

For seven months, we experimented with a patent gun that we bought from a Frenchman, instead of going ahead and making the French 75, for which we had all the patterns. We spent \$1,000,000,000 on airplanes, and no American fighting plane ever reached the front.

We built half a dozen powder plants, and not one of them produced a pound of powder or nitrate for use in the war. In the meantime, our troops in France were using equipment we had to buy from the Allies.

The War Department planned for an army of 4,000,000 men and 86,000 horses. For the 4,000,000 men, they ordered 41,000,000 pairs of army shoes. For the 86,000 horses, they ordered 50,000 sets of double harness, 100,000 sets of single harness, 945,000 saddles, 1,500,000 curry combs, 2,000,000 feed bags, and 2,800,000 blankets. All of the information I have given here was developed in the course of a Senate investigation of war preparations. It discloses a shocking degree of waste, inefficiency and incompetence—and we haven't yet paid all of the bills.

While this sort of extravagance is difficult to justify under any conditions, it is highly essential that it should not be repeated in our current program.

We cannot afford to proceed with this rearmament program on hasty and ill-considered decisions.

Arming for defense

WE ALL wish to be absolutely certain that America is equipped to protect herself against foreign aggression, but our nation does not now, nor has it for many years, desired to add to its present possessions. We are arming and training, not to take something away from someone else, but to protect and defend what we have.

Now that the election is over, it seems to me that the people of this country are entitled to a frank statement with respect to all the objectives of the rearmament program. The President has assured us, and so has the Secretary of State, that no commitments have been made to any foreign country or to any representative of any foreign country with respect to American involvement in Europe or in the far East.

I have been puzzled about the whole situation. In the first place, I have been assured by competent military and naval experts that an invasion of America would be an almost impossible task, un-

less we deplete our own protective equipment to the point of enfeeblement.

These experts also tell me that, to have the slightest chance of success, an invading army would have to be composed of at least 500,000 troops with the necessary equipment and with supplies for 15 days. Eight hundred and fifty ships would be required to transport a force of this size with equipment and supplies. Before the troops could be landed, our defending Navy and coastal defense would have to be overpowered. That would require enemy battleships, cruisers, destroyers, mine sweepers, mine layers, airplane carriers, and auxiliary ships totalling more than 1,200. It would be the largest armada ever conceived by man. And, when the naval and air bases recently acquired by us are completed, the task of the invader would be immeasurably greater. As a matter of fact, military students seem pretty well agreed that America could be defended with an adequate supply of long range bombers.

It seems to me that we must look the situation squarely in the face, keeping in mind always that, while we must prepare ourselves adequately, we simply cannot afford a continuing extravagance.

We do well to remember the discussion of a few years ago at the time our debt limit was increased. It was suggested that this great and wealthy nation could stand a debt limit of even \$50,000,000,000. At the time, most people viewed this as a fantastic figure that under no circumstances ever would be reached, yet today we face the prospect of a new debt limit of \$65,000,000,000.

Just because money has been appropriated is no reason that we should spend it, unless that spending is necessary and can be justified. Those who bear the burden in taxes have a right to ask for a reappraisal of the whole situation in the light of the nation's actual defense needs.

Cost of Government

UNFORTUNATELY, we have become so accustomed to speaking in terms of billions that I fear we are inclined to lose sight of just what government is costing us. I know that is true because I did not comprehend the magnitude of our current spending until I related it to the assets which, over the past 100 years or more, had been accumulated by our American life insurance companies. When I found that the appropriations of the last Congress alone exceeded 60 per cent of the entire assets of all of the life insurance companies of America, upon which 65,000,000 of our citizens are relying for care of themselves and their dependents in the day of adversity, I saw with startling clarity what is really going on.

The whole situation presents a real challenge to every American and particularly to every business man. In the final analysis, the great lesson we business men have to learn is the miracle of our own strength when we stand together. When we have permitted division of our ranks, we have been made the victims of our own weakness. Our

strength is in unity. Let us use it not for ourselves alone, but for the preservation of the most important business of all, the business of being Americans.

We seek no special advantage for business. We want nothing for our group at the expense of other groups. We want and demand the right to do business honestly and fairly under a system of laws rather than of personal edicts in an atmosphere of encouragement rather than of suppression.

Under these conditions we can make defense a reality. We can preserve the country, not alone in name, but in the form in which the founders gave it to us. We can build sound prosperity, provide jobs, and maintain the freedom of opportunity which every American wants, and is entitled to have.

To that accomplishment, American business pledges all its resources of inventive genius, initiative, experience and ability, strengthened and supported by its devotion to the ideals of this Republic.

Industry Trains Its Leaders

(Continued from page 26)

nois, Michigan and Wisconsin.

The duPont Fellowship plan was established to promote the advancement of science and to cooperate with educational institutions in their efforts to carry on advanced scientific work. Thus high school graduates and college undergraduates are not eligible for this program. It differs from the usual industrial fellowship plans, however, in that there are no restrictions with regard to the research subject to be undertaken. The duPont Company believes that independence of thought and research should be encouraged. For 1940-41, the company will grant 20 graduate fellowships of \$750 each and six postdoctorate fellowships of \$2,000 each, plus an additional \$1,000 to cover equipment.

About 15 per cent of the beneficiaries of the duPont fellowships have joined the company's permanent staff in the 20-odd years of the plan's operation. The company has sought to recruit brains for the chemical industry as a whole, not merely for its own laboratories.

This same broad view of the youth program is held by a number of other big companies, notably General Electric, which has a remarkable record of achievement among the scholarship and fellowship holders whom it has helped to gain educations. Junior employees and sons of employees are eligible for the Steinmetz Memorial Scholarship at Union College, Schenectady, with a yearly allowance up to \$500. Many of the 39 students who have benefited since the plan was inaugurated in 1918 have gone on to do graduate work and at least one was valedictorian of his college class.

For college graduates, the Coffin Foundation, established in 1922 by General Electric, provides \$500 a year for eight or nine individuals. Of the 118 young scientists who have received these fellowships to date, more than one-half are now listed in "American Men of Sci-

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(Right) Closeup view of Ideal Roto Sweeper dirt receptacle

(Below) Roto Sweeper at work in manufacturing plant.



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Send me all the facts on the Ideal Roto Sweeper.

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ence." Carl D. Anderson, who received the award for the academic year 1927-28, was awarded the Nobel prize for Physics in 1936. Handpicking of youths with brains evidently gets results!

General Electric also has established loan funds to help young employees and sons of employees through college. About \$65,000 has been lent through these funds. Owens-Illinois Glass Company of Toledo and its subsidiaries have a similar loan fund setup, applicable to the University of Illinois, open to employees and their children. A maximum of \$250 a year is lent to any individual. The arrangement is strictly businesslike, the loans being repayable at four per cent interest, within four years after graduation.

Training youths without college

AND what happens to youths who have to get jobs before college, or with no thought of college in mind? They, too, have a part in industry's youth movement. Swift & Company, the Chicago meat packers, for instance, has an extensive course of training for junior employees, its training division in the course of a year having as high as 6,000 employees entered in class work.

Courses of study include beef and small stock economics, psychology, public speaking, commercial law, filing, salesmanship, dictation of business letters—a practical mingling of college, business school and trade school subjects. Classes are held in late afternoons, and employees in plants not large enough to warrant formal courses are offered the same educational opportunities through correspondence.

Let's look briefly at some others: Chrysler, with 6,000 in training courses; the famous Henry Ford Trade School at Dearborn, for boys between 12 and 18, who receive from \$475 to \$1,400 a year each as they work and learn; Vick Chemical's school of Applied Merchandising, where a college education is a desired but not compulsory prerequisite; B. F. Goodrich Company's arrangement with Akron University, through which 50 boys take a combined college and shop course, training, not for white collar jobs, but for skilled trades.

Probably 500 industrial firms are making earnest, sincere attempts, some with endowments and scholarships, some with their own training schools, to help American youths find themselves in industry. Perhaps it never occurs to them that they are part of this country's real youth movement, but they are. The way the employers themselves look at it was well and typically expressed by G. R. Shriber, staff superintendent of the engineering division of Goodrich:

We are proud of our organization and have found through experience that the majority work out to very definite advantage. The boys we are training are considerably above the average. Instead of staying with the trade for which they train, some ambitious individuals are now in the sales, time study, costs, planning and other departments, which acquire above average young men. Only about one boy in 30 proves unsatisfactory.

Mr. Shriber's experience tallies with that of many another industrialist. The 29 out of 30 who make good are well worth the investment. American youth wants its opportunity. Industrial companies are providing it—jobs and careers, with a premium on brains.

New Congress Prepares to Watch and Weigh

(Continued from page 20)

talk of 50,000 airplanes, but some members of the two committees will attempt to point out that 50,000 old-fashioned airplanes would be duck soup for an up-to-date enemy if we ever got into war. It was shown in 1914-18 that a design for a fighter plane might not be good for more than a week because the other fellow might get out a better one. This had been forgotten in 1939 but demonstrated all over again in 1940. Our new fighter planes are said not to be as good as Britain's Hurricanes and Spitfires. Some members of the two committees will try to induce the Army and Navy to put more emphasis on quality than on quantity.

"When they have enough planes to go on with, they'll be all right," the members say. "Right now they want planes. They are not getting enough."

The Johnson Act will come up for treatment. This is the law by which nations in default on their debts to us are barred from further borrowing. At the moment, there is no certainty that the Johnson Act will be amended. The only possible borrower in sight is Great Britain and Britain still has plenty of cash with which to pay for goods. Congressional opinion seems to be fairly com-

posed that, if Britain should run out of funds, some kind of a trade will be cooked up by the Administration and assented to by Congress. Something like the swap of destroyers for options on island bases.

Sentiment for Britain

AN EFFORT to amend the Neutrality Act will be coupled with the attempt to change the Johnson Act, and if one goes through the other will also. It will probably be possible to read the future in the light of the news despatches. An incident or an accident might shift us into a belligerent attitude over night, and it must be understood that congressional admiration for British valor will play a part here. Congress has not warmed, in the opinion of some observers, to the argument that we should play a part in a fight to preserve democracy, and it is a little finicky about giving men and money to keep the British commonwealth intact. Yet its sentiment seems to be unmistakably pro-British. It does not want this country to get into a conflict of arms, but if we are forced in Congress will be a bit emotional over a people who have shown ability to take it the way the British have. As a body

Congress resents the disposition of the executive to give away money from such luscious pots as the stabilization fund, for each such act reduces the importance of Congress in our tripartite scheme of government. But if a situation were to arise in which sharp action seemed advisable the Administration could go as far as it liked and the accounting would be taken up later.

Up to the time of writing, the offers of friendship and cooperation to the Latin-American republics have been handled through the State Department. So far as the inquirer has been able to discover, Congress is amenable but confused over the situation. It will give money and say "yes" to any project involving the protection of the Panama Canal through any deal with the Central American states, Santo Domingo and Haiti. The outright purchase of airplane bases—for the sake of the record to be open to joint use by other South American states—would probably be assented to.

To purchase naval bases

FEELING is growing that the plan of leasing Caribbean islands is not wholly satisfactory, and that we should buy outright either the islands or the bases. The destroyer deal will come up for sharp inquiry in this connection. There will be a strong element in both houses which will urge that we should remember the lessons of 1917-19 and pay at least as much attention to our own interests as other nations do to theirs. It is pointed out that the agreement by which we share the Caribbean bases with the armed forces of Britain, plus the understanding that the same agreement will be operative in the strong points now held by Britain in the East amounts to a treaty of alliance.

Apart from this, propositions looking to more intimate relations with South America will be scrutinized. A line in the National Guard Act which permits the use of the Guard anywhere in the hemisphere has aroused fears as to the nature of plans which have as yet been undisclosed.

That these plans exist has been disclosed by the careless chatter of some of the less responsible New Dealers. They talk vaguely of the "necessity" of controlling elections in South American countries and of "defending" them against aggression and of "supporting" friendly administrations. None of this can be charged against any responsible member of the Administration. The visit of Vice President-elect Henry A. Wallace to Mexico for the purpose of smoking a peaceful pipe with the new Camacho Government is taken to be a straw in the wind by some. Others say it is not a straw. In any event, no evidence is available here that the Almazan pretenders had the votes or have the rifles. So they may be disregarded.

It seems to be a fact, too, that the Cardenas-Camacho faction is willing to compose the differences of long standing which have interfered with friendly relations, such as the seizure of American-owned oil and other American-owned properties. Some congressmen balk at the project to arm and train Mexican troops in advance of a mutually satis-

factory settlement of past grievances.

There seems to be a disposition among the congressmen interrogated to regard the legislative record of the past eight years as water over the dam. Time and effort would be wasted in trying to do away with the "reforms"—"whether or not they really were reforms" as several congressmen observed. Social Security, the Labor Board, the wage-hour act, the W.P.A., the numerous farm organizations, the housing boards and the like will be accepted by the seventy-seventh Congress—so several of its more thoughtful members say—as permanent components of our administrative structure. This is not to say that they are to be regarded as untouchable. Wendell Willkie noted that 13 separate organizations have to do with housing and that this not only prevents coordination and creates confusion but leads to the spending of money at a time when every possible penny should be saved. Congress will certainly give its first attention to national defense and its attendant fiscal problems. Later on and perhaps coincidentally the manifold socially-aimed organizations will be inquired into. More about this presently.

Meanwhile, it should be observed that Congress seems to this inquirer as more internationally-minded than ever before. For eight years our internal troubles have monopolized its attention. Until comparatively recently the Executive ignored our weakness as compared to the rest of the world. Even after the war in Europe was well under way no demand for bettering our military establishments was made on Congress. Now that the country is thoroughly committed to a system of defense, however, congressional eyes are turning more and more curiously to world affairs. Congress is beginning to talk of "power politics," which it never did before.

Not eager to declare war

BUT the seventy-seventh Congress hopes—if the preview is trustworthy—to know all about the provocation before giving the nod to the President to go ahead and declare war. We have been buying rubber and tin in the East for a number of years from one set of sellers. The seventy-seventh will ask to know whether it will be necessary for us to go to war to prevent a change in the name over the eastern door, especially if the new owners are willing to sell us rubber and tin just as the old owners did.

That is, that is what some important members of the seventy-seventh say. The statement that Secretary of State Hull will not resign has pleased them. Hull is regarded as a conservative influence, and congressional leaders think he has more than once kept us out of trouble. The same confidence is not shown in Welles and Berle, undersecretaries of state, nor in "Bill" Bullitt, Ambassador to France, and suggested as "Joe" Kennedy's successor in London. Mr. Bullitt is so far from being a non-combatant that it is possible that serious opposition might be expressed to this change. To quote Senator Taft again:

I think the seventy-seventh Congress will be as independent of New Deal control as the seventy-sixth was on occasion.



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The so-called Medical bill will come before the seventy-seventh Congress in one form or another. Conservative members on both sides of the party line hope that it can be held to relative mildness. That seems at present to be about as far as the hopes extend. Until its initial form has been determined there is little use in discussing it, except to say that, if the wishes of its more violent supporters are translated into action, state medicine will become a reality. Young doctors will step into jobs with the state or nation while the ink is still wet on their diplomas, and diagnosis, treatment, and medicine will be free to those who ask. At the time of writing it seems probable that a Medical bill will become law in a modified form.

That statement may be only the expression of the hopes of those who oppose state socialism.

Socialism and education

THE chances seem to be against the enactment of the General Education bill, which various associations of teachers will wage. If it becomes law in the form many educators favor, a long step will have been taken toward state socialism in the opinion of such men as Senator Taft. It would involve the complete control of grade school education by the state, in precisely the manner in which education has been so successfully managed in the totalitarian states. This statement will be vigorously challenged, but it is at least certain that the possibility of complete state control of education is inherent in the propositions which have been placed before Congress. The lowest estimate of the cost of the proposed plan is \$1,000,000,000 a year.

If the plan to maintain a "loyal opposition" set forth by Wendell Willkie in his post-election speech is carried out, the nationally minded members of the seventy-seventh Congress will be in a better position to control legislation than their predecessors in other congresses have been. Heretofore the opposition has been along partisan lines, which inevitably handicapped a minority. The Willkie proposition seems to be that proposed legislation will be scrutinized without reference to any political significances, and the effort will be made by the representatives of the more than 22,000,000 Willkie voters, who certainly included Democrats as well as Republicans.

Mr. Willkie has emphatically stated that this is not to carry his name and, by so doing, has presumably added to the potentialities of the movement. If this "loyal opposition" is totally divested of any partisan flavor, the nationally minded members of the seventy-seventh Congress—so far as they have been interrogated—feel that their position will be greatly strengthened.

The Congress will be asked, for example, to halt the federal Government's continuing intrusion in matters of purely state concern. To put that statement in other words, the centralization tendencies of the past eight years will be resisted. As Senator Byrd states the case, it is possible to do everything necessary inside the frame of the Constitution.

"It is just more trouble."

He thinks the trouble is worth taking. "Democracy is a means of getting liberties. If you surrender liberties, democracy is no good."

It is unpleasant, he said, to be in opposition all the time, but unpleasant things are sometimes wrapped up in apparently innocent packages. He is prepared to accept the fact that a great deal of money will be spent in our defense effort, but he hopes that the seventy-seventh Congress will regain control of the purse strings.

Instead of handing out a blank check, we should appropriate money in sums of \$5,000,000,000 or less. Then we can know what we are spending it for.

Even yet he thinks there is a possibility that economies might be ordered. I would not say that he is optimistic about this. Once before he proposed that the ordinary expenditures of government be submitted to a ten per cent slash, and it was only beaten in the Senate by two votes.

Since then tens of thousands of employees have been added to the pay roll and the addition goes on steadily. If the seventy-seventh Congress takes a firm stand, this ten per cent can be taken off without impairing in the least the effort for defense. Such a reduction would be the first step toward a return to a sane economy.

I'll make no prediction.

He is apparently more hopeful that the seventy-seventh will impose taxes which will at least in part pay-as-we-go for the national defense effort.

There are but three ways in which we can raise the money we need. One is by reducing expenditures and avoiding waste. A second is by borrowing. The third is by imposing taxes now rather than by waiting until the inevitable reaction comes after the war.

He will continue his effort to reduce the 40-odd independent corporations to something like order.

He has at least been able to gather information about them—which was not available to the public until he began his task—and some good may be done. That depends on the seventy-seventh Congress.

Your guess is as good as mine.

Foundation for an army

WHEN the first flurry of the \$50,000,000,000 or fight spirit dies down, the seventy-seventh may be able to reduce the Army to some order. Working with American machines and American ideas, the Germans have proven that the modern army, to be successful, must be mechanized and that the day of the old-style foot-slogger has gone. That being the case, Senator Taft thinks the seventy-seventh Congress may at least lay the bedplates for the army of the future. It will be composed largely of mechanics and mechanics must be paid well or they will not stay in the Army. He thinks Congress may, ultimately, put the size of the permanent Army at approximately 600,000 men:

Of whom 150,000 would be garrison troops, 150,000 in the Air Force, 150,000 in an expeditionary force if one is required—which would depend entirely on the

world conditions—and 150,000 at home.

Such men must be well paid. The Army must be a permanent establishment and men will join it as a career and stay in it during their active life. Other nations have had their professional armies. The time has come when we must have one of our own.

There is fairly general agreement that the Hatch Act, by which machinery was set up to control the spending of political organizations, will be amended somewhat. The effort will come after the figures of the recent election are in and digested.

Weaknesses in the Act have been identified and it has become evident that a political committee cannot properly be charged with responsibility for the spending of volunteer organizations or excited individuals. Nor has any way been found of charging against a national political organization the expenditures in a national election of purely local machines. There is, however, acceptance of the fact that opinion supports the Hatch Act and that, even if the seventy-seventh Congress is not enthusiastic, it will not agree to any weakening.

Labor Act still needs amendment

THE selection of Dr. Walter Millis as the third member of the N.L.R.B. will not, in the opinion of most members queried, operate as a defense against the amendment of the Labor Act. It is pointed out that the trend seems to be in favor of a return to a government of laws and away from the government by men toward which we have been drifting recently, and that, if the enforcement of so important a law is to be left to the judgment of the Board members, an unfortunate condition will be continued. The executive will oppose any amendment, and it may be that the first test of strength between the New Dealers in the seventy-seventh Congress and the "loyal opposition" will come on this.

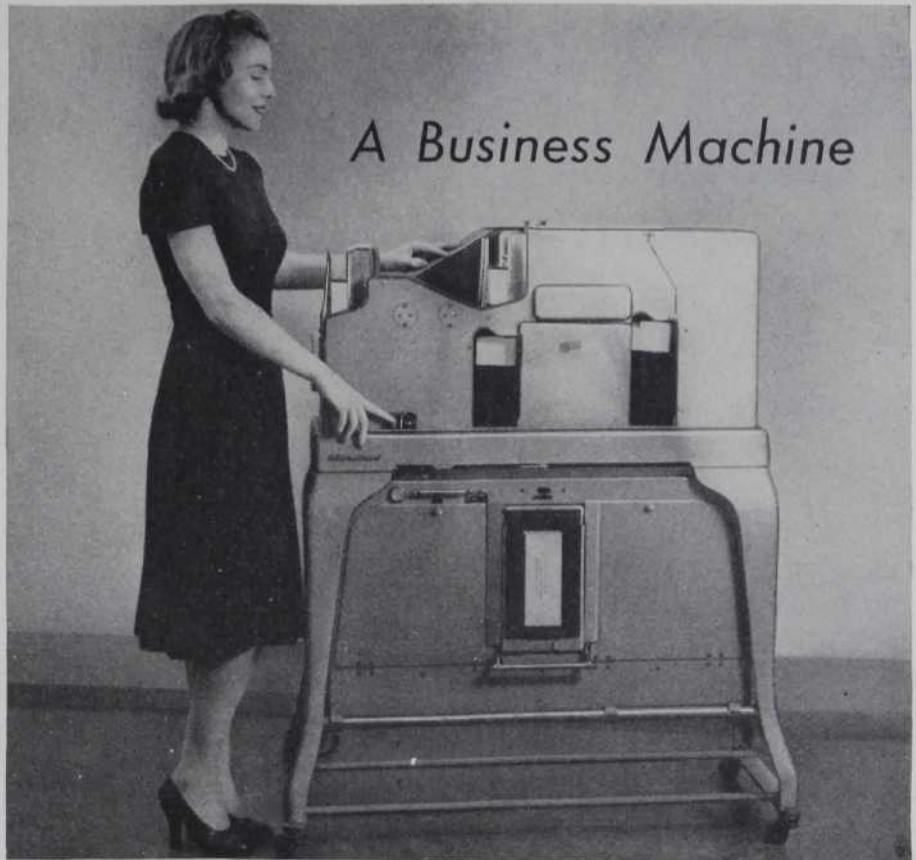
Such a test, however, may be prefaced by a struggle over an amended Walter-Logan bill, by which it is sought to create and strengthen court controls over various bureaucracies. It is admitted that the primary version of the Walter-Logan bill is faulty in some respects, but at the time of writing its proponents believe that, in the seventy-seventh, they will not only have the strength to pass it in both Houses, but to carry it over a possible veto.

The new taxes which the Administration will propose and in which Congress will probably concur will include raises in estate levies, increase in federal taxes on gasoline, soft drinks, beer and perhaps on whisky. The whisky tax raise seems more doubtful, in view of the ease with which moonshining and bootlegging can be operated to the net loss of revenue and deterioration of the nation's moral fiber. Congress has not wholly forgotten the lessons taught by the Noble Experiment.

There will be an upping of taxes on transactions in securities and a determined effort will certainly be made to do away with tax exempt bond issues.

Sales taxes and a boosting of middle income tax schedules are regarded as

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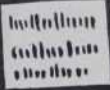


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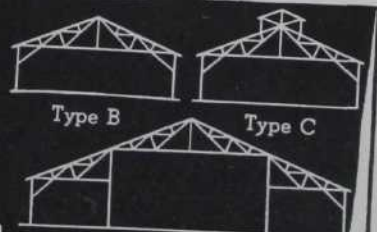


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likely. The imposition of a federal sales tax will probably be deferred until employment has been largely increased. A few more strikes on defense projects, such as that at the Vultee works in California, will bring about the passage of an Act for the control of labor during emergencies, unless the present temper of Congress changes.

An effort will be made to revive the St. Lawrence power project on the theory that it will be needed for the national defense. The present outlook—so far as there is an outlook on the complicated power problem—is that it will be coldly received. Previous hydro-electric projects put forward by the Government were warmly received because the spending of money was offered to so many congressional districts that the beneficiaries were able to combine. Those congressmen who have "got theirs" are no longer altruistic toward those who have not.

Other schemes for money spending now seem more promising, and it is recognized that, outside the actual needs of the national defense program, the expenditures authorized by the seventy-seventh may be very closely watched. Said one member:

For the first time in eight years the public is taking a really serious and intelligent interest in the nation's financial problems. The steadily mounting debt and taxes are frightening the people. There is evidence that they are being alarmed by the certainty of an increase in living costs.

It is not likely that any effort will be seriously made to undo the reorganization of government departments which President Roosevelt put through:

Because of the uncertain world conditions, the seventy-seventh Congress will not interfere.

Status of reorganization

IT LEFT a definitely sore memory with some of the hold-overs from the seventy-sixth Congress, however, and it is certain that it will be referred to frequently in the ensuing session. The first reorganization bill gave the President virtually complete powers over administrative agencies and to create new executive departments with the authority to prescribe their duties and functions. Congress rejected this encroachment on its field, but agreed that some realignment of agencies was needed for economy and efficiency. The amended reorganization bill, therefore, granted the President power to transfer, consolidate and, under certain conditions, to abolish agencies and functions of the federal Government. But it specifically denied him the right to create new functions.

But the President did what he had had in mind all along except that, instead of calling the new organizations "departments," he named them "agencies." Presently the heads of these agencies were sitting in at Cabinet meetings, and so have become in fact, if not in law, executive departments of the kind the Congress forbade the President to establish.

This really passed unnoticed at the time because, in his reorganization or-

der, the President directed that the heads of the so-called "agencies" should be appointed "by and with the advice and consent of the Senate."

That seemed to make everything all right at the time. Later the seventy-sixth Congress realized that it had been tricked into ratifying acts which had been specifically forbidden.

The President ordered a second reorganization on May 9, 1939, and suggested that both reorganizations should take effect on the same day. This required a joint resolution to make it valid and, when this appeared, it provided that the provisions of the Reorganization Act of 1939 should be disregarded. This had the effect of repealing all the restrictions written into the Act by Congress and ignored by the President. Neither House offered any real objection. Neither House, in fact, seemed to comprehend precisely what had been done. The fact has now become an irritant, however and, if the seventy-seventh comes to handgrips with the President, the reorganization will be brought out on both floors.

It is even possible that it may become a major issue. It is too early to say that the seventy-seventh Congress will investigate more than a few of the various agencies which have been set up. The Civil Aeronautics Authority is almost certain to come in for an inquiry. The National Youth Administration thinks the Office of Education put over a fast one on it.

The Federal Communications Commission will be under fire. A great many congressmen want to know about the various Divisions of Investigation which the departments have set up.

The list might be extended until it becomes wearisome. Questions will be asked about the Bureau of the Budget and the General Accounting Office with a view to finding out why they cannot work in double harness. If the fire once starts, some of the grass around the recent reorganizations may be burned. The Administration will set up the needs of the national defense as a shield against all inquiries into its acts.

Congress has the power to undo all the things that have been proven faulty. It remains to be seen what the seventy-seventh Congress will do. If Senator Taft is right it will not confine itself to thumb twiddling.

A Pattern for Labor Legislation

(Continued from page 32)

able in revising the National Labor Relations Act. They represent only the minimum requirements if the law is to be made even approximately fair. Other suggestions could be advanced; others have been advanced, notably with reference to the composition and functions of the Labor Board. But, if the Congress of 1941 enacts the amendments here suggested, any Board that is fair minded can make the law work at least much better than it has worked so far. Here

it should be emphasized that recent changes in the personnel of the Board and of its staff, although they may improve administration, will not suffice to cancel the inequities and absurdities that have grown up over the past five years. The primary fault is with the law itself, not with the Board.

In regulating wages and hours of work, Congress has tried to ride two horses going in different directions. First it passed the Public Contracts Act of 1936 (Walsh-Healey Act) applying to some—not all—employers manufacturing goods for the Government. Then, in 1938, it passed the Fair Labor Standards Act (wage-hour law) prescribing wages and hours of labor in all establishments in interstate commerce. The laws present confusing differences and inconsistencies. Since the wage-hour act represents the later and presumably the better judgment of Congress, it would seem that the sensible thing to do is to repeal the Walsh-Healey Act entirely, and then to amend the wage-hour act in directions indicated by two years of experience.

Changes in wage-hour act

SUGGESTED amendments include:

1. The maximum working time, without overtime pay, should be increased from 40 to 48 hours a week. This is important if the national defense program is to be accomplished without inflationary costs. It should be emphasized that, in making this proposal, nobody is suggesting that a single wage-earner work one hour or one minute without pay. The idea simply is to pay regular rates, not punitive overtime, up to 48 hours.

2. The law should be amended to eliminate further automatic increases in wage rates. It is impossible to forecast what wage levels will be either fair or practicable in future years, and attempts to set up inflexible schedules may prove to be both useless and harmful.

3. Industry committees and industry wage orders should be eliminated. This machinery is unnecessary, since all employees are protected by the general provisions of the law. Special rates affecting single industries are disadvantageous to small companies and to the less favored localities. They injure both marginal employers and marginal workers.

4. The law should specifically exempt all supervisory employees and all salaried employees earning more than some fixed sum—perhaps \$35 a week. Probably Congress never intended to have the law cover these employees, and attempts to make it do so have complicated administration and led to friction and confusion. Recent orders of the Administrator have corrected this situation to some extent, but amendment of the law is called for.

5. A manufacturer should not be penalized for violations of the law by those from whom he buys raw materials and other supplies.

6. Congress should liberalize the regulations for employee training to encourage training programs of employers rather than to discourage and penalize them. New regulations of the Administrator have improved this situation, but further relief is needed, particularly in view of the demand for trained workers in the national defense program.

Social security lies partly inside and partly outside the field of labor legislation. The Social Security Act already has been amended in important par-

ticulars. Other amendments and proposed new legislation were pending when the Congress of 1940 adjourned. Doubtless many proposals will be introduced in the session of 1941. Among these may be health insurance, extension of protection to domestic and farm labor and to the self-employed, and various old age pension projects.

A few changes in the existing law need to be made promptly, to extend protection to men in military service. The Social Security Board has suggestions along this line which Congress should consider carefully.

All other proposed amendments and all suggestions for new social security legislation should be referred to a committee of experts, advisory to the Federal Security Agency, the Senate Fi-

nance Committee, and the House Ways and Means Committee. It should include representatives of employers, labor and the public, selected primarily for their understanding of the subject. A somewhat similar committee, the Advisory Council on Social Security, of which Prof. J. Douglas Brown of Princeton was chairman, was instrumental in getting amendments to the Social Security Act in 1939. The report of this committee, rendered in December, 1938, showed the results of a thoroughgoing and scientific study.

Social security legislation is complicated and technical and it deeply concerns the future solvency of the United States Government. It should not be left to the political manipulations of pressure groups.

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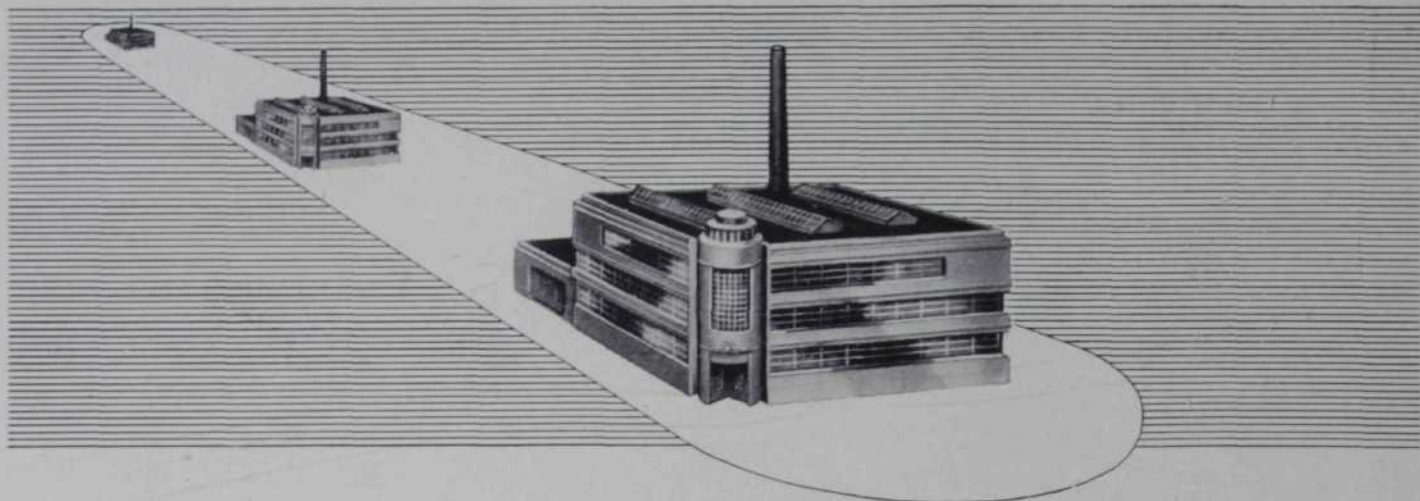
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